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Cross cultural differences in Adolescent adjustment between Australia and France

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Cross cultural differences in Adolescent adjustment between Australia and France

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Statement of Originality

This is to certify that all work contained in this thesis is my own unless otherwise cited. This thesis has not been submitted previously in whole or part towards a degree at this or any other University.

Camille Rault

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Date: 14Th April 2019

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Abstract

This thesis investigated whether culture played a role in human development, specifically during adolescence, and compared Australian and French individuals. A comprehensive literature review indicated that this was one of the first investigations to have compared youth from France and Australia, two Western countries considered to have similar values, wealth, political organisation, and social orientation. While the majority of cross-cultural research tend to focus on comparing Eastern to Western countries, the advantage of using countries that share similarities allowed for cultural subtleties to be studied, therefore preventing traditional and perhaps simplistic views of an East and West dichotomy. Identifying parts of cultures that positively influence adolescent development provided guidance for the initiation of well-being programs for adolescents. Each culture offers positive attributes that could be modelled by others in order to foster positive adolescent development.

Adolescence presents a number of unique features in the development of individuals (Flamm & Grolnick, 2013), characterised by physical changes typically between the age of ten and 19 (Lehmiller, 2017). Adjusting to this developing body may lead to changes in confidence, identity, and a desire for feelings of worthiness (Erikson, 1963; Forbes & Dahl, 2010). On the social front, adolescents step out of the shadows of their parents and begin forming more complex relationships with peers (Steinberg & Morris, 2001). As peer interactions become more common and increasingly valued, adolescent social development is shaped by self-consciousness, the desire to belong, and sensitivity to rejection, (Forbes & Dahl, 2010; Steinberg & Morris, 2001). As adolescents become more independent, there is an increased autonomy and unsupervised interaction with peers, exposing them to ambiguous and potentially risky situations. For adolescents, this may be problematic, as their lack of experience may result in poor use of coping strategies that may negatively affect adolescent well-being (Patterson & McCubbin, 1987). Consequently, this thesis measured both coping and well-being in order to identify how the environment influenced these important aspects of adolescents' lives.

From Bronfenbrenner's perspective, cultural differences have a substantial impact on adolescent identity. The Ecological System Theory (1977) served as a background for this research,

and elements of the different systems were examined. Culture is viewed as a socially interactive process, comprising shared activities and shared meaning (Greenfield, Keller, Fuligni, & Maynard, 2003). Values and norms provide guidelines on acceptable, or unacceptable attitudes and behaviours.

Many authors have noted the lack of a multidimensional instrument that measured subjective well-being among adolescents as a major limitation in the investigation of adolescent well-being (Gilligan & Huebner, 2002; Huebner, 1995; Konu & Lintonen 2006; Park et al., 2004; Seligson et al., 2003; Snyder & Lopez, 2007). The creation of a multidimensional measure of adolescent subjective well-being with adequate domain coverage and utility in cross-cultural settings was undertaken as part of the current dissertation. The instrument creation followed a thorough procedure to ensure cross-culturally usability in both France and Australia. Testing of the final instrument was conducted in the two countries of interest and produced eight factors representing life domains contributing to well-being. Despite similarities, the composition of these factors varied slightly and was suggestive of the instrument's sensitivity to cultural differences. This research also examined adolescent coping in these two countries, using an established measure of adolescent coping, and highlighted the different approaches taken by the young individuals according to their cultural setting. This dissertation provided avenues for future research to develop well-being programs and promote positive coping strategies.

Keywords: Adolescent adjustment, cross-cultural, subjective well-being, and coping.

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Pour Adrien et Marine, aux enfants

que l'on a été et à ceux que l'on aura.

Preface

Adolescent development, an overview.

Definitions and Research Background

The word adolescence derives from the Latin root *adolescere*, which means to grow up or grow into maturity (Muus, 1990). During this time, adolescents typically gain up to 20 percent of their adult height and 50 percent of adult body weight (Abassi, 1998; Rogol, Roemmich, & Clark, 2002). Body shape also undergoes significant changes for both boys and girls during this period (Hoffnung et al., 2010; Lehmiller, 2017). Boys, influenced by higher levels of testosterone, develop secondary sex characteristics including increased body mass, growth of facial and pubic hair, and the elongation of the vocal cords contributing to a deepening of voice tone (Dahl, 2004; Sinclair, 1990). During adolescence, males develop a more V-shaped body type (thin waist with broad shoulders) with a decreased fat to muscle ratio (Sinclair, 1990). Males begin producing sperm and are affected by surges in testosterone that increase their sexual interest in potential partners (Hoffnung et al., 2010; Lehmiller, 2017). Girls, influenced by higher levels of female hormones such oestrogen, also develop secondary sex characteristics including a pronounced hourglass body shape, widened hips, larger breasts and an increased muscle to fat ratio (Dahl, 2004; Sinclair, 1990). Adolescent females begin menstruation and are sensitive to fluctuating hormone levels during their monthly cycle (Lehmiller, 2017). These physical changes signal the transition from childhood to adolescence.

Psychosocial changes often accompany the rapid physical changes that occur during early adolescence. Adolescents start to develop meaningful relationships with peers that contribute to their identity construction (Erikson, 1963; Steinberg & Morris, 2001). The broadening of social experiences exposes adolescents to new stressors that can affect them on emotional, cognitive, and behavioural levels (Frydenberg, 2008; Goldstein, 2005). Examples

of such stressors include conflicts arisen issues from relationships with family and peers as well as the uncertainty at the beginning of romantic involvement (Frydenberg, 2008). During this time, adolescents learn how to manage their own social relationships. However, prior to adolescence, young individuals tend to be guided away from situations potentially risky by parents. With the increased autonomy that accompanies adolescence, young individuals are often forced to assess risks and make decisions based on anticipated outcomes (Forbes & Dahl, 2010). According to prospect theory (Tversky & Kahneman, 1974), decision making relies on an individual's perception of potential risks and rewards, which is driven by personal knowledge and experiences. There may be a risk for adolescents, as their judgment could be uninformed due to limited knowledge and lack of previous experiences. In addition, despite the rapid physical transformations that occur in early adolescence, higher cortical functions including reasoning and decision-making skills remain under-developed in these years (Blakemore, 2012; Murty, Calabro, & Luna, 2016). The pre-frontal cortex is not fully developed until around 25 years of age (Giedd et al., 1999; Luna, Padmanabhan, & Paus, 2005). This area is associated with planning and decision-making, which means that adolescence is a period of questionable decision-making and some decisions made by adolescents could, therefore, be high-risk. Similarly, adolescents may not be fully equipped to cope with new situations or stressful events. Imperfect decision-making and lack of coping strategies may negatively affect adolescent well-being (Patterson & McCubbin, 1987).

Although adolescence has historically been conceptualised as a period of storm and stress (Hall, 1904), recent research has shown this period of transition is smoother than previously thought (Arnett, 1999). However, adolescence remains a period of vulnerability, when the body and mind are developing at a fast pace, and young individuals are facing diverse challenges without having fully developed the skills necessary to manage these challenges. The significance of the impact of these developmental changes highlights the

importance of examining the underlying factors that contribute to adolescent development. This current research used well-being and coping behaviours as outcome variables to assess adolescent development.

Several theories have added to the understanding of adolescent development. Early prominent theorists expressed divergent views on the formative developmental stage of adolescence. Piaget (1959), Erikson (1963), and Marcia (1966) are among the authors who have recognised how both physiological and psychological changes during adolescence impact cognitive and social development; however, their perspectives on adolescence differ. Piaget (1959) saw adolescence through a cognitive stage lens, with an emphasis on thought development. In contrast, Erikson (1963) identified adolescence as a period of negotiating psychosocial crises and identity formation. Marcia (1966) expanded Erikson's view and developed a typography of identity status. Kohlberg (1981) examined the development of moral reasoning during adolescence. While the aforementioned researchers conceived adolescent development as being somewhat universal in nature, Bronfenbrenner (1977) conceptualised adolescent development as a result of social, societal and cultural influences and developed the Ecological Systems Theory. Central to this theory, Bronfenbrenner posited that environment fosters attitudes and behaviours in the individual, and accordingly, social, societal and cultural factors contribute to the development of adolescent identity.

A comparison of Australia and France

To illustrate this point, the current work chose to compare two countries that shared main cultural features, while being different enough to highlight cultural subtleties. Most work in cross-cultural research tend to compare countries illustrating the individualist-collectivist divide. However, I argue that this comparison can have little validity. The differences are so pronounced and deeply rooted in each culture that any conclusions made

often relates back to the initial dichotomy without allowing for specific cultural aspects to be observed.

France and Australia have sought to develop a strategic alliance based on common values – democracy and human rights. Through a macro approach, the two countries are seen to share similarities in socio-political systems and wealth. However, France and Australia have enough differences (e.g. language, historical past, and micro cultural values) to constitute a valid comparison. France was selected because an issue that had been topical in Australia for many years was starting to get attention in France in 2014. Well-being had dominated the social landscape in the education field in Australia for a while. The emphasis on positive development was in part in response to the prevalent issue of bullying, which had been the focus of many research papers. One of the alarming consequences to poor well-being and bullying has been suicide. The issue of adolescent suicide in Australia is critical and remained at a steady level despite government efforts. It was therefore compelling to observe the response of France when the country was hit by a series of teens suicide relating to bullying cases. Well-being in schools had not been the subject of investigations in France. French education system had a narrow focus on students' academic performances. Nonetheless, faced with this *mal-etre* crisis France started to develop well-being trainings, which tended to focus more on resilience when experiencing adversity rather than trying to eradicate the problem at its root. From an observer point of view, it was interesting to see two countries responding to similar events fairly differently. Australia being known to be a "happy country" was trying to educate adolescents to not engage in these negative behaviours and promote positive well-being. While France, being part of the old world, was facing the issue with more scepticism and was trying to equip its adolescents with appropriate tools to deal with the problem. In both contexts, the topic of well-being was prevalent. Where Australia was advanced in its expertise, France was trying to decipher how to introduce this notion in

schools. The timing of these events was propitious to study cultural factors affecting adolescents' development and coping strategies.

In summary, adolescent theories provide a lens through which we can understand youth development. These theories provide a foundation for this research, which is intended to extend the literature in this area, no research investigating the impact of culture on adolescents in the Australian and French contexts was found during the literature review. This research aligned with Bronfenbrenner's theory and argued for the importance of culture in the development of individuals. While an examination of adolescent development encompassing all theoretical approaches was beyond the scope of research, it was important to consider the contributions of these theories to provide context for this study.

Research Trajectory

This dissertation has been structured into four parts. The first part comprises the first four chapters and presents a literature review in relation to adolescent developmental theories, the impact of culture on adolescent development, adolescent well-being and the issues in cross-cultural research. This first part also describes the methodology used for the seven studies conducted. The second part includes chapters five to seven and extends on the literature review from part one specifically targeting the instrument development in both Australia and France as well as the psychometric testing. The third part constitutes chapter eight and presents a literature review on coping and the investigation of coping behaviours in Australian and French adolescents. The fourth part encompasses chapters nine and ten, which present a cross-cultural evaluation of a model of adolescent well-being and coping and discusses the finding of this research.

Overview of the Contents of the Subsequent Chapters

The overview of the chapters is as follows. Chapter one will present the major developmental theories on adolescence as well as the documented research on the influence of culture on development. Chapter two will offer an overview of adolescent Subjective Well-Being (SWB) and a critical review of the existing instrument in the field. Chapter three will target the methodological issues present in cross-cultural research and lay out the methodology used in the research. Chapter four will describe the development of the first instrument created in the research intended to measure adolescent SWB. Chapter five will relate the process of translation and refinement of the created instrument. Chapter six will inform on the psychometric evaluation conducted on the instrument in both settings, France and Australia. Chapter seven will introduce coping and examine the coping profile of French and Australian adolescents. Chapter eight will analyse the relationship between adolescent SWB and coping in France and Australia. Chapter nine will summarise the finding of this research.

Chapter 1

Developmental theories on adolescence

Piagetian stage developmental theory

Historically, adolescence has been seen as an important period in human development, which followed the onset of puberty and transitioned the child into adulthood (Piaget, 1959). During this period of important biological, physical, and cognitive changes, children become increasingly equipped to manage more adult complex thought processes and independent thinking (Piaget, 1959). From a cognitive perspective, Piaget described adolescence as the transition from concrete operational reasoning to formal operations. At the concrete operation level, a child develops logical thought and demonstrates the use of inductive reasoning but is limited to tangible and specific concepts. Formal operations follow concrete operations in the developmental sequence in classical Piaget development theory. At the formal level, the adolescent is able to develop thoughts about abstract concepts, solve problems using deductive reasoning and make future plans. Piaget (1959) posited that adolescents are able to think beyond concrete information and are able to develop abstract reasoning. Additionally, the formal operation stage sees the development of conceptual thinking, in which adolescents can transfer a learned concept in one area of knowledge to another area (Piaget, 1959).

Although Piaget's stage theory is widely accepted as a foundation of developmental psychology, at least some children's behaviours appear to be inconsistent with a strict stage interpretation of development. Children may be able to complete abstract tasks before a strict stage model suggests they should in scaffolded learning situations. These individual differences suggest a limit to Piaget's model. In a quasi-experimental study, Artman and Cahan (1993) suggested that schooling had a stronger effect on the development of deductive reasoning than age, which means that the developmental stages described by Piaget cannot solely be explained by maturation factors.

Siegler (1981) suggested that children and adolescents use a rule-based approach to solve problems and that those sets of rules were domain-specific. According to Siegler's model, young individuals approached every situation differently, and they used a series of trials and errors to evaluate the best approach, and the differences in performance between children were due to the various strategies employed. Furthermore, cognitive development was found to be susceptible to cultural and social environmental factors (Dasen, 1972; Rogoff, 2003). Piaget established his norms on Western children, but these were shown to be inconsistent for non-Western children (Dasen, 1972). Aboriginal Australians showed delays when compared to European Australians in concrete operation (Dasen, 1970). In New Guinea, some teenagers aged 12 to 15 were found not to solve the conservation task properly (Kelly, 1971; Waddell, 1968) while adolescents from Zambia and Senegal achieved lower than age expected norms (Greenfield & Bruner, 1966; Heron & Simonsson, 1969). Dasen (1972) posited these findings were compatible with Piaget's model regarding the structure of thinking. However, he pointed out that culture had not been accounted for, and the variance explained by the maturation effects may have been overestimated. While some of the limitations of Piaget's theories seemed to be better explained by social mechanisms, other early theorists believed that cognitive principles were insufficient to explain children's development and behaviour. Erikson (1963) was more interested in the social dimensions of development than was Piaget, as is evidenced in psychosocial theory.

Psychosocial theory

The psychosocial theory focused on individual personal attributes in relation to the social environment. Erikson (1963) proposed that a series of developmental crises trigger development. He argued in the psychosocial stages theory that the resolution of crises experienced by an individual framed subsequent development and contributed to their position in their social environment. According to Erikson, during adolescence, individuals

shape their personality to be ready for adulthood, and develop what he labelled ego identity. Erikson posited that in order to form ego identity, the period of adolescence was one of psychological moratorium[1], in which teenagers were caught in a limbo stage between childhood and the unknowns of adulthood. This psychological moratorium served as a necessary experimental phase in social development, in which they could explore different aspects of their identity and experience several adult roles.

For children aged between five and 12 years old, the psychosocial theory posits an *Industry versus Inferiority* crisis (1963). The psychosocial crisis of the Industry versus Inferiority stage is marked by a critical normative event, namely entry into formal education. Erikson noted that school teachers and peers became increasingly important in children's lives, and parents and siblings were slightly less influential. At this stage, children learn a variety of skills including reading, writing and completing tasks independently. When children are encouraged and reinforced for taking the initiative and completing a task, they experience a sense of competence. Erikson stated that competence was the successful outcome of this stage. In contrast, if children were restricted in their initiatives or not reinforced, this could engender self-doubts and restrict further attempts, leading to feelings of inferiority. From an Eriksonian perspective, feelings of inferiority prevent children from developing to their full potential (1963). Although this crisis is marginally outside the developmental period studied in this research, it is important to describe it for two reasons. Firstly, it is understood that individuals evolve through stages and therefore, understanding the previous stage offers more insight into the stage of interest. Secondly, Erikson defined the Industry versus Inferiority stage for children aged between five to 12 years old; consequently,

[1] Moratorium refers to a phase of exploration during which individuals engage in a variety of behaviours in order to shape their identity.

in the population of interest in the current study, some of the participants may still be resolving this crisis.

The next stage started with the onset of adolescence and was characterised by an *Identity versus Role confusion* crisis. For adolescents aged between 12 and 18, the transition to adulthood is distinguished by a shift in the appraisal of the role one will have as an adult. During this stage, adolescents re-assess their identity and explore a repertoire of behaviours in order to assert their tastes (Erikson, 1963). *Identity construction*, according to Erikson, comprised of two components, sexual and occupational. The physical changes experienced through adolescence affect the self-perception of the individual and increased awareness of gender role expectations. Adolescents start exploring their intimacy with opposite-sex or same-sex partners, providing an opportunity to explore more in-depth emotional bonds and sexual experiences. Additionally, societal expectations lead the adolescent to question his or her role in the future. Adolescents tend to join different clubs, evaluate different systems of beliefs, either religious or political, and practice diverse activities. These pursuits provide an opportunity for them to evaluate paths that are coherent with their forming identity. Erikson identified a successful outcome of this stage and labelled it the *virtue of fidelity*. This is achieved when an individual finds and commits to a self-identity, after questioning and exploration. For instances where this stage is not mastered properly, the theory predicts an identity crisis. This theme of identity formation is thus crucial during adolescence under Erickson's theory.

It is important to note that social interactions influence this process of identity formation. The social pressure experienced by adolescents to conform and fit in a peer group is significant during this phase of moratorium. This social pressure may influence their choices and attitudes. Attachment to peers, and feelings of intimacy and mutuality were found to be positively associated with environmental exploration and commitment to a vocation

choice (Felsman & Blustein, 1999; Meeus, Oosterwegel, & Vollebergh, 2002). Having a supportive network may as such serve as a safe base for the adolescent to explore his or her identity. Additionally, having trustworthy relationships was linked to commitment (Meeus et al., 2002). Adolescents who felt they were trusted and accepted by their peers were more likely to adhere to an identity choice. Parental influence was also found to be significant in identity construction (Meeus et al., 2002). Maternal attachment was also a predictor of exploration and commitment to career and identity (Felsman & Blustein, 1999; Meeus et al., 2002). Consistent with the situational hypothesis (Brittain, 1968), the study by Meeus and colleagues reported that parental influence was stronger when making decisions about the future, while peer influence was pertinent to issues relating to the present life of the teenager.

However, the influences of peers and parents can also have adverse effects on identity formation. An Australian study showed that unhealthy dieting habits and body image concerns were stronger among friendships of the same clique than between friendship circles (Paxton, Schutz, Wertheim, & Muir, 1999). Similarly, adolescents involved with antisocial peers were more likely to engage with gangs[2] (Laird, Pettit, Dodge, & Bates, 2005). In this context, teenagers often endorse the antisocial values of these gangs and their identity may reflect this social deviance. Parental influences may also pose an issue. Parents who tend to oppose their adolescent's moratorium period would not foster an environment for exploration. As such, these adolescents may experience difficulties in differentiating from their parents and creating their own identities (Waterman, 1982). Conversely, parents who lack involvement in their adolescent's development and who do not show a healthy pattern of communication and support would not attend to the adolescent's need for guidance (Beronsky, 2004; Smits et al., 2008). As such, the adolescent may not feel safe to explore, and

[2] A gang is a group of individuals with clear leadership, which often engages in delinquency acts such as graffiti, drug dealing and theft (Esbensen, Winfree & Taylor, 2001; Winfree, Backstrom, & May, 1994).

may prolong this moratorium phase, which leads to an avoidant pattern of identity formation (Beronsky, 2004; Cakir & Aydin, 2005; Smits et al., 2008). In summary, Erikson's theory offers an understanding of the changes and challenges faced by adolescents, yet it is also important to consider the influence of social interactions in the process of identity formation. In this research, it was argued that the interactions encountered by the individuals and the social context he or she develops in would be detrimental for identity formation.

Identity formation

The next section addresses two different approaches to identity formation, which is an important aspect of adolescence. The most influential model in the field of identity formation is an extension and refinement of Erikson's psychosocial crisis theory. Marcia (1966), a Canadian psychologist, developed a new approach in which human development was viewed as non-linear and could lead to the possibility of different endpoints. Coté (1996) considered the interaction between the environment and the different layers of identity.

Marcia Identity status theory

Where Erikson posited adolescence to be the period of resolution of identity and role confusion, Marcia extended this view by suggesting that adolescence was determined by exploration and commitment. Marcia (1966) defined exploration as a phase of an active search for possible identities, and commitment as the adherence to one identity. Individuals varied between high and low on measures of these two aspects, and so four identity types appeared: Identity diffusion, identity foreclosure, identity moratorium, and identity achievement (refer to Table 1; Marcia, 1966). These four statuses provided a practical application of Erikson's theory.

Table 1

Marcia's typography of identity statuses

		Crisis	
		Present	**Absent**
Commitment	**Present**	Identity achievement (achieved stage)	Identity foreclosure (foreclosed stage)
	Absent	Identity moratorium (moratorium stage)	Identity diffusion (diffused stage)

Created by the author, Camille Rault, 2020.

Identity foreclosure is characterised by low exploration but high commitment, whereby parents or close peers impose a future on the adolescent, and this is not questioned. Foreclosed adolescents are conventional and "rigidly happy". *Identity diffusion* refers to low exploration and low commitment, whereby the adolescent does not consider his or her future and is not actively trying to build his or her identity. High exploration and low commitment are the features of *identity moratorium*. During this phase, the adolescent engages in several and often antithetic behaviours in order to "try out" endless possibilities. The attainment of identity is referred to as *identity achievement*. Unlike the other statuses, identity achievement denotes a progression from exploration to commitment, with individuals scoring high on both dimensions. In other words, after the adolescent has had the opportunity to experiment, he or she is committing to one identity.

Identity statuses were found to be predictive of adolescents' well-being (Vleioras & Bosma, 2005). The diffused stage, and to a lesser extent, the foreclosed stage, were associated with the most detrimental outcomes including poor peer relationships, low academic achievement, and maladaptive decisional strategies, as well as drug and alcohol problems (Nurmi, Berzonsky, Tammi, & Kinney, 1997). Conversely, achievement and moratorium

statuses were associated with higher levels of psychological well-being and self-esteem (Abu-Rayya, 2006; Orlofsky, 1978).

Marcia's typology offers a useful perspective on identity formation. Nonetheless, the model has a number of limitations. Marcia initially viewed identity status as a progression towards identity achievement through the other statuses (Hofnung et al., 2010). However, adolescents can experience foreclosed identity status exclusively throughout adulthood (Hoffnung et al., 2010). Similarly, contrary to expectations, identity achievement may not always signal the end of exploration and be the final stage. Research suggested that adolescents alternate between moratorium and achievement (MA) going through MAMA cycles (Archer, 1989). These cycles reflected the different facets of identity that adolescents were shaping, such as religious identity, professional identity, and political identity. Furthermore, Marcia's model did not account for gender differences and gender roles in identity construction and research showed that different variables were valued in identity construction across genders (Gilligan, 1993; Kroger, 2003). Identity construction for those females who held more traditional values was found to be associated with intimate relationships, whereas, for males, identity was associated with a sense of autonomy (Gilligan, 1993; Kroger, 2003).

Another limitation according to Coté and Levine (2002) was that Marcia's model did not take into consideration the influence of contextual factors in identity formation. These authors pointed out that Marcia's identity statuses relied heavily on personal attributes and advocated the importance of the environment in the development of identity. Coté and Levine (2002) suggested that Coté's model (1996) provided a more thorough picture of identity formation, as this model integrated social, psychological phenomena, historical events, and societal changes. Coté's work consisted of a dynamic perspective of identity formation resulting in a person - context fit. This model stemmed from the assumptions of social

psychology tradition in sociology, regarding social structure and personality (House, 1977), which considers social contexts when studying human development (Coté, 1996).

Coté's identity formation model

According to this model, identity formation is influenced by individual's personal attributes, relationships maintained with other members of the culture and the political and economic climate of a culture (similar to Bronfenbrenner's theory). Additionally, these interactions are shaped by an overarching social structure of the society, which refers to the chronological development of that society. Table 2 shows the typography of identity formation from Coté's model.

Table 2

Coté's model of identity formation with the three layers of analysis by social structural period

Level of analysis	**Type of identity**	**Socio-structural period**		
		Pre-modern	*Early- modern*	*Late-modern*
Social structure	*Social identity*	Ascribed	Achieved	Managed
Interaction	*Personal identity*	Heteronomous	Individuated	Image-orientated
Personality	*Ego identity*	Foreclosed	Achieved	Diffused

Created by the author, Camille Rault, 2020.

Coté considered the social-structural period of a society, in which the individual develops. This social - structural aspect reflects the changes and influences that have occurred in Western and Western-influenced societies. The *pre-modern* societies are referred to as folk and agrarian societies, where social cohesion is strong among members of a small community, and agriculture is the primary source of income. The *early - modern* societies are characterised by modernism, where social relations among individuals started to revolve around mass production. Lastly, *late - modern* societies differ by the way they emphasise

consumerism, being central to social interaction, and the rising importance of technology (Coté, 1996).

According to Coté, identity formation is a dynamic perspective that requires the evaluation of three layers of influence, from which specific identity concepts arise: (a) social identity, (b) personal identity, and (c) ego identity. In addition, there are three layers of analysis specified in the model, (a) social structure, (b) interaction, and (c) personality. *Social structure* is described as cultural, political and economic systems. This leads to the formation of social identity, which indicates the social status of an individual in a social system. *Interaction* is defined by the set of behaviours between individuals in socialising institutions such as families and workplaces, and engenders personal identity, which designates the concrete aspects of the relationship between individuals. *Personality* includes self, character and ego, which contributes to ego identity that denotes the subjective development of personality (Coté, 1996).

According to this model, *social identity varies across each type of society*. In pre-modern societies, social identity would be ascribed and decided based on inherited characteristics and therefore race, gender and lineage determined social identity. In early - modern societies, social identity was achieved, with personal accomplishment and material belongings indicative of social identity. In late - modern societies, social identity is managed, which relates to a desire to fit and gain approval from other members of the community and impression-management constitutes the core of social identity (Coté, 1996).

In terms of personal identity, at the interaction level, the spectrum evolves from heteronomous identity to individuated identity and ends with image-oriented identity. In pre-modern societies, the individual accepts others' appraisals and expectations that lead to conformity, and this results in a heteronomous identity. In early-modern societies, the

individual develops distinctive personal styles and roles that form an individuated identity, and this contributes to a diverse community. In late-modern societies, the individual focuses on meeting the approval of others in order to fit in, which leads to an image-oriented identity (Coté, 1996).

Ego identity is shaped by the individual experience of events and their perceived importance. In pre-modern societies, foreclosed identity is the most common identity type and refers to the adoption of commitments dictated by others. In early-modern societies, the achieved identity is predominant and is characterised by self-determined commitments. In late-modern societies diffused identity is the most prevalent identity status and is illustrated by the lack of long-term commitments (Coté, 1996).

Baumeister and Muraven (1996) reiterated the significance of the person - context fit. They argued that the societal changes dating back to the Renaissance in Western countries changed the nature of identity. They posited that the individual's identity construction is not limited to the expression of their inner self but must be symbiotic with norms and criteria of cultural context. As such, this interactive approach aligns with the Ecological System Theory of Bronfenbrenner (1977). History holds that collections of events shaped the way individuals developed and that these historical trajectories played a role in an individual's construction of identity. The discrepancy in identity between teenagers living in France in 1936 and 2016 can be taken as an illustration of the impact of history on identity formation. In the 20th century, youth were expected to have a strong nationalist identity and saw neighbouring countries with very different eyes, from a nationalist perspective. Conversely, 70 years later, there is a feeling of broader European citizenship among youth, which allows young individuals to broaden their horizons in terms of freedom of circulation and employment opportunity. This example, which illustrates how contextual historical events influence individual development,

can also be seen through the lens of Bronfenbrenner's model (1977) as a representation of the chronosystem.

Western societies are increasingly representative of the late-modern stage, with an emphasis on image-building and consumerism - based lifestyles (Coté, 1996; 2002; Furlong & Cartmel, 2007; Schwartz, Coté, & Arnett, 2005). In this context, the moratorium phase, a period of exploration was found to be prolonged (Arnett, 1998; Arnett & Taber, 1994; Shanahan, 2000). These societies seemingly offer teenagers a wider range of opportunities than ever before for their life course, with more avenues to study different fields, increased leisure time with a wide range of activities, and greater opportunities to travel (Wallace & Kovatcheva, 1998). This can be destabilising (Luyckx et al., 2008; Schwartz et al., 2005) and therefore, maintaining commitment can be quite difficult (Coté, 1996). Additionally, developmental milestones such as moving out of home, finding a job, or getting married are being delayed by younger generations (Arnett & Taber, 1994; White, 2003), and this postpones adulthood and stability (Coté, 2002, Schwartz et al., 2005, Luyckx et a., 2008). Further, late-modern societies provide fewer guidelines for teenagers (Furlong & Cartmel, 2007; Luyckx et al., 2008), which can lead to late teenagers lingering in the diffused phase. Therefore, from a phase of exploration, young individuals fixate into a diffused phase, as some have argued that committing to a life choice has become less and less valued by society (Furlong & Cartmel, 2007). This effect is even more pronounced because these societies pressure the individual to project an image of "fitting in". Although most of the literature addressing this issue focused on emerging adulthood (Arnett, 2000), this shift in identity formation begins during adolescence. Therefore, although identity *per se* is outside the scope of this research, it is important to be aware of this transition phase. Importantly, it becomes clear that adolescent identity and adjustment are at least partially the product of the adolescents' social environment.

Ecological Systems Theory of Development

In contrast to earlier theorists, Bronfenbrenner (1977) emphasised the importance of the environment on human development. This ecological systems model illustrated how individuals are influenced by five social layers of the environment (refer to figure 1). The most influential layer is referred to as the *microsystem*, and consists of family, friends, and teachers. These agents interact closely and influence the individual directly. Prior to adolescence, the microsystem is the primary source of modelling, establishing a platform of behaviours and values that guided the child's development to that point. The next layer is the *mesosystem,* which comprises the same agents and accounts for their reciprocal interaction. As opposed to the microsystem, the influence of the mesosystem is indirect on the individual. This second layer reflects the impact of the relationship between parents and school teachers on the child. For instance, if a child is experiencing difficulties concentrating in class, the teacher may contact the parents, who might decide to take their child to a psychologist. This mesosystem is influenced by the *exosystem,* which includes the extended family, the parent's work environment, friends, neighbourhood, and the mass media. It provides a broader context in which the individual develops. The exosystem can be illustrated by a child whose parents were devout and the child would develop in a pious community. Consequently, the child would be exposed to a set of norms, values, and customs particular to that group. The *macrosystem* embraces the attitudes and ideology of the culture, in which the child resides. For example, in a country where co-education is rare (as mixed-gender education does not reflect the values of the prevailing culture), children would have different peer interactions than children from most Western countries. The last layer is the *chronosystem.* The chronosystem refers to events and transitions that happen in life, both on a personal level and on a societal level. On a personal level, these factors include the divorce of parents, death of a

grandparent, and relocating to a different region. On a societal level, these factors include changes in the legislation regarding marriage, changes in politics, and periods of war.

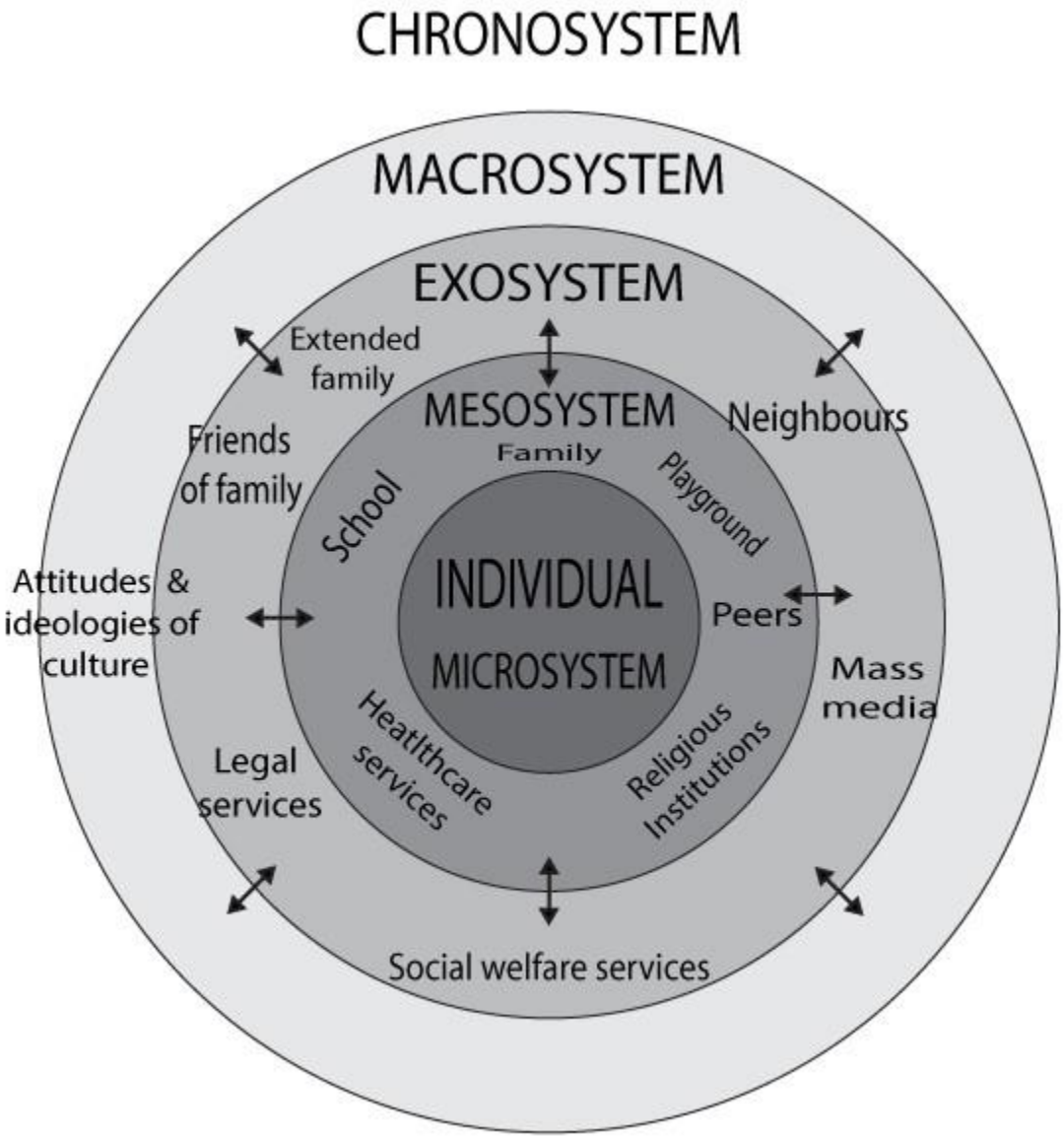

Figure 1. Bronfenbrenner's ecological systems model (adapted from Berger, 2007, p. 123)

Cultural influences surrounding adolescent behaviour such as drinking patterns can be explained by the Ecological Systems Theory. For example, it is common in French culture for a teenager under the age of 18 to develop a taste for wine (i.e. macrosystem), despite the legal age to consume alcohol being 18 (i.e. reflecting chronosystem). It is culturally acceptable for

French parents to serve half a glass of wine to teenagers aged 14 and over. The introduction to alcohol is initiated by family and accompanied by introducing knowledge regarding the beverage and associated food (i.e. characteristic of microsystem). Historically, alcohol within the French culture is associated with festivities, shared meals, family reunion, and the agape type of love. The Ecological Systems Theory stresses the importance of the environment on the development of the individuals.

Contrasting attitudes towards alcohol consumption between French and Australian cultures can be examined through the lens of the ecological systems model. In French culture, often an appreciation of food and wine influences the individual's attitude and behaviour towards alcohol at the familial level. However, a different attitude towards alcohol within the family, and more largely within the culture, could impact drinking patterns on an individual level. This cannot be said for all Australians. Most Australian teenagers would not openly drink alcohol before the legal age of 18. Therefore, most of the underage drinking is done in secrecy, and condemned by adults. Around the time individuals turn 18, they graduate from year 12 and embark on the cultural ritual of "schoolies", often entailing heavy drinking. While some families and part of the society condemn this practice, others perceive this experiment with alcohol as a rite of passage. Differences in approaching alcohol initiation and cultural parameters around alcohol consumption result in different drinking patterns between the two cultures.

Statistical figures from the World Health Organisation (WHO) tend to support this idea as the pattern of drinking appears to have more consequences than the quantity of alcohol ingested. According to the WHO (2011), using data average from 2003 to 2006, France (13.7 litres of pure alcohol per capita) had a higher consumption of alcohol (aged over 15) than Australia (10.00). More recent data from the WHO (2014) showed that this discrepancy disappeared with both countries consuming an average of 12.20 litres of pure alcohol per

capita. However, in WHO's reports both in 2011 and 2014, Australia scored higher for high-risk drinking (2 on a 5-point scale) than France with a score of 1 (being the least risky), suggesting that the pattern of drinking may be more detrimental than the quantity consumed. Despite the relatively high alcohol consumption by French people, France reports lower levels of high-risk drinking than most of Europe. In contrast, in Australia, high - risk drinking such as binge drinking is more common and has become a national health issue (Polizzotto, Saw, Tjhung, & Stockwell, 2007). Binge drinking refers to the consumption of copious amounts of alcohol in short periods of time in a sporadic nature (Blaze -Temple & Fisher, 1987).

Cultural norms around alcohol consumption in Australia are well documented (e.g. Kirkby, 2003; Tomsen, 1997; Polizzotto et al., 2007). In 2008, the Australian Bureau of Statistics (ABS) recorded that 38 percent of their national sample had engaged in binge drinking in the two weeks prior to being surveyed. Furthermore, a study on Australian drinking patterns showed 70 percent of their sample had engaged in a drinking game on at least one occasion in the last six months (Polizzotto et al., 2007). Additionally, these drinking games were associated with binge drinking in 70 percent of cases and could be seen as initiators of excessive drinking behaviours. The relationship between perception of masculinity and excessive alcohol consumption are embedded in the Australian drinking culture to the extent that these patterns of behaviour are deemed socially acceptable by some and perceived as "loosening up" (Polizzotto et al., 2007; Tomsen, 1997). Nonetheless, according to the latest report from the Australian Institute of Health and Welfare (2016), the quantity of alcohol consumed by Australians has steadily decreased since 2001 and despite that, 42 percent of Australians between the age of 18 and 24 reported consuming more than five standard drinks on a single night at least monthly. The cultural context of drinking in Australia may foster negative behaviours around alcohol consumption. These observations suggest that patterns of drinking may be more significant than the quantity of alcohol

consumed. Consistent with Bronfenbrenner's model (1977), societal values, culture and agents within the ecological system all play a role in the individual attitudes and behaviours regarding alcohol consumption. The ecological system model offers a solid framework to compare cultural influences on the development of adolescents. The current project intended to measure domains such as family, school, and friends and to examine their influence on adolescent development in both settings. It was of interest to see whether cultural factors influenced these domains.

Universalism perspective

In contrast to Bronfenbrenner, alternative perspectives on human development minimise the influence of culture on the construction of identity. The more extreme alternative view is one of absolutism, also referred to as extreme universalism (Berry, Poortinga, Breugelmans, Chasiostis, & Sam, 2011). Absolutism assumes that there is an underlying shared nature common to all human beings (Adampoulos & Lonner, 1994). According to this view, behaviours are not influenced in any significant way by culture, and supporters of this view seek to explain psychological phenomena in isolation from their context, to establish universal "truth" (Adampoulos & Lonner, 1994).

Universalism or moderate universalism takes a more tempered approach. Universalists argue for a shared human nature under a layer of culture. Adherents to this view acknowledge that, although culture influences human behaviours, this is only to a superficial level (Adampoulos & Lonner, 1994). The idea of universalism is prevalent in various fields, and social, political, and physical sciences professionals and social psychologists like Emile Durkheim, and anthropologists such as Claude Levi-Strauss and Donald Brown have argued for cultural universalism. In psychology, universalism is explained by the inherent aspect of human experience. Universalists argue that basic human needs and more complex psychological processes are similar across all humans and cultures (Kohfeld & Grabe, 2014).

Evolutionary psychology, defined as the investigation of behaviour, thought, and feeling through the lens of evolutionary biology, embraced the universalism perspective (Berry et al., 2011). For evolutionary psychologists, all human behaviours are the result of physical and psychological predispositions coming from common ancestors that allow the human race to survive and reproduce. Brown (1991) listed the aspects, patterns, traits, and institutions that are common to all human culture and language. Personal names, leadership, property, marriage, gender roles, jealousy, rites of passage, cooking and shelter are examples of these cultural universals. These features, common to all human cultures, have been advocated as the basis of uniform psychological functioning (Berry et al., 2011). Cross-cultural studies are important tests of the idea of the universalist perspective, a finding of cross-cultural difference between two cultures such as France and Australia that share many common attributes would support Bronfenbrenner's contention that individuals' identity is influenced by their experiences of cultural factors in their social environment.

An illustration of universalism

The underlying assumption for these commonalities is that cultural practices revolve around biological aspects of human development and that some of these cultural practices would either enable or constrain the developmental process (Greenfield, Keller, Fuligni, & Maynard, 2003). To illustrate commonalities across cultures, the rite of passage into adulthood can be examined. Jewish communities have the Bar Mitzvah to celebrate the entry of 13-year-old males into adulthood. For the Baka people (a community living mainly in Cameroon), a ceremony is organised to mark the passage from boyhood to adulthood. In both cases, these cultural events would compel the individual to more responsibilities. The young Jewish male would have to abide by Jewish law, while the young Baka would have the responsibility of being a hunter for his community. Conversely, some rites of passage grant more rights to the individual. For Maasai males (a community living in Kenya and Tanzania)

aged between 14 and 16, the ceremony of Eunoto symbolises their senior warrior status. From then, they can choose a wife, drink milk and eat meat, which was forbidden until this stage. Equivalent ceremonies exist for females with Bat Mitzvah for Jewish young ladies and the Quinceanera for females reaching 15 years of age in South America. In most Western cultures, when teenagers reach maturity, they too have access to more opportunities such as driving a car or entering establishments licensed to sell alcohol. These examples show that, despite the difference in the manifestation of the cultural practice, human behaviours rotate around similar common natural bases (e.g. acquisition of language, puberty) and rites of passages.

Criticisms of universalism within evolutionary psychology

Academics supporting this universalist approach argued that any difference in the environment of children's and adolescents' development was inconsequential, as similar patterns were observed across various contexts. As previously stated, the universalist perspective was endorsed by the branch of evolutionary psychology. However, there have been many detractors of evolutionary psychology, and several criticisms have been made of the theory (e.g. Bussey & Bandura, 1999; Davies, 2012; Ehrlich & Feldman, 2003; Horgan, 1999; Lancaster, 2003; Plotkin, 2004; Schacter, Wegner, & Gilbert, 2007). Firstly, evolutionary psychology explains the existence of a current phenomenon after its development. These post-hoc explanations may place too much emphasis on the current understanding of a phenomenon while disregarding less obvious factors that contributed to its evolutionary adaptation (Ehrlich & Feldman, 2003; Schacter, et al., 2007). Secondly, critics have rejected the conclusions of evolutionary psychology as reductionist, and genetic determinism (Ehrlich & Feldman, 2003; Hamilton, 2008; Lancaster, 2003; Plotkin, 2004). In line with evolutionary psychology perspective, Jensen (1969) speculated that Intellectual Quotient (IQ) was determined by gene heritability to such an extent that environmental

conditions could not affect it. However, recent studies have shown that the genetic aspect of IQ was only part of what constituted a person's intelligence, and that positive and nurturing environment also contributed substantially (Deary, Strand, Smith, & Fernandes, 2007; Forest, Hodgson, Parker, & Pearce, 2011). Finally, one other criticism of evolutionary psychology was the interpretation of cultural universals (Ehrlich, & Feldman, 2003). Although some aspects of human experiences were reported across cultures, studies have found that these patterns were a response to historical and cultural changes (Davies, 2012; Lancaster, 2003; Paulson, 2001). This means that the Eunoto and the Bar Mitzvah might have completely different origins, and that they are in fact, deeply rooted in cultural differences. Another illustration of a misinterpretation of cultural universals is fear. Evolutionary psychology thinkers such as Pinker (1997) have argued that fear of dangerous animals was an example of a shared evolutionary trait, coded in the Deoxyribo-Nucleic Acid (DNA), which had allowed the human race to survive against potential danger. However, in Papua New Guinea, where some of the most dangerous species of spiders exist, this fear is not present. Diamon (1993) observed in Papua New Guinea that adults and children displayed little fear of snakes and spiders. Indigenous people knew how to discriminate between dangerous and harmless species. In this case, the fear of poisonous animals, displayed by Westerners, is not innate, as assumed by evolutionary psychology, but appears to arise because of an over generalisation, and lack of exposure and knowledge; therefore, it appears that even biological responses can be influenced by the environment. Consequently, the argument that the fear of certain species is common across cultures lacks credibility.

Although evolutionary psychology poses that universal traits across cultures may be attributed to historic genetic influences, there is little empirical evidence to support such a claim. Indeed, cross-cultural differences, even in human responses, have been documented (Diamon, 1993) and argue against this position. It appears much more likely, on the basis of

the available evidence, that direct personal experience of culture has a primary influence on development. This research rejects the universalist perspective that argues for the inconsequential impact of the environment on human development. In contrast, this research focuses on the impact of culture on development.

Evolution of developmental tasks through cultural perspectives

Culture and biology have been suggested to be interconnected, and at times complementary (Fiske, 2000; Greenfield, 2002; Keller, 2002). In the environment, natural selection pressures have caused universal developmental tasks to change and evolve phylogenetically, on an evolutionary scale, and culturally throughout history (Cole, 1996). Greenfield et al. (2003) suggested that universal development tasks adapt to the environment towards either an independent or interdependent pathway. Traditionally, developmental psychology had assumed the cultivation of independence for most investigations (Greenfield et al., 2003). However, it is important to consider the alternative pathway to better understand normative behaviours in a specific culture.

The literature indicated support for the concept of milestones of human development such as the stepping reflex, smiling at similar faces, or acquiring language (Hoffnung, et al., 2010). These milestones are essential to the development of healthy children, and deviation beyond certain limits from milestone achievements may be indicative of developmental issues (Schillace, 1964; Wendt, Makinen, & Rantakallio, 1984). Greenfield et al. (2003) used three key approaches to examine the influence of culture through the independent and interdependent pathways on developmental milestones: cultural value approaches, eco-cultural approaches, and socio-historical approaches. Before examining their work, it is important to define independent and interdependent pathways as well as the cultural value approach, eco-cultural approach and socio-historical approach.

Interdependent and independent pathways

Independent and interdependent pathways reflect values of individualistic and collectivist cultures, and researchers have used these terms interchangeably as demonstrated in a meta-analysis (Oyserman, Coon, & Kemmelmeier, 2002). The path of independence is characteristic of individualistic Western cultures, in which there is an inherent drive for distinctiveness between individuals (Markus & Kitayama, 1991). The normative development in such environments is to acquire independence from other members of the culture and express one's uniqueness (Geertz, 1973; Johnson, 1985; Markus & Kitayama, 1991; Shewder & Bourne, 1984). In the independent pathway, rights have a priority over duties (Hofstede, 1980) and there is an emphasis on personal responsibility as well as freedom of choice (Waterman, 1981). Therefore, personal thoughts, feelings, and behaviours are primary concerns to the individual (Johnson, 1985; Markus & Kitayama, 1991; Shewder & Bourne, 1984) and moral decisions are made in accordance with personal standards (Cross & Madson, 1997).

In contrast, the path of interdependence is characteristic of collective non-Western cultures (Markus & Kitayama, 1991). Interdependence has been observed in Asian, African, and Latin-American cultures (Markus & Kitayama, 1991). This pathway emphasised the connectedness between individuals (Kondo, 1982) and diffuse mutual obligations and expectations at a community level (Schwartz, 1990). In this context, the normative development of individuals relies on the maintenance of interdependence between agents of the same culture, through self-defining relationships (Cross & Madson, 1997; Markus & Kitayama, 1991). Personal thoughts, feelings, and behaviours are viewed through the lens of these relationships (Cross & Madson, 1997; Markus & Kitayama, 1991) and moral decisions are guided by the need to conform to others' expectations (Lyson, 1983). Individuals in interdependent cultures see themselves as part of a social unit (Sampson, 1988) and their self -

concept is evaluated heavily on their ability to respond to the needs of significant others as well as on social obligations (Jordan, 1991). In this context, group membership is a key feature of self - identity (Hofstede, 1980; Markus & Kitayama, 1991). Therefore, the extent to which other members of the community are taken into consideration in the perception of self, as well as thoughts, feelings and behaviours, creates a divide between the independent and interdependent pathways.

Cultural value approach

Cultural influences of the independent and interdependent pathways on the developmental milestones can be explained by three theoretical approaches: cultural value approach, eco-cultural approach and socio-historical approach. Greenfield and colleagues (2003) first examined the cultural value approach, that is, the role that culture has in determining the behavioural norms for members of the culture. From this approach, belief systems and cultural ideals are implicitly communicated, and are necessary to achieve culturally valued goals (Harkness & Super, 1996; McGillicuddy- De Lisi & Sigel, 1995). An illustration of this concept can be seen in the claim that the Chinese (Chao, 1994), Japanese (Rothbaum, et al, 2000) and Indians (Keller et al., 2002b) strived towards cultural ideals of decency and proper demeanour in the social and cognitive developmental domains (Harwood, 1192). In contrast, it has been claimed that the Germans (Keller et al., 2002b) and Dutch (Harkness et al., 200b) endorsed cultural ideals of self-maximisation and independence. The cultural value approach stresses the implicit aspect of a system of beliefs and values and their transmission within a culture.

Eco-cultural approach

Greenfield's second approach, eco-cultural, emphasised an interaction between biology and environment, and development is seen as a result of a process of adaptation to environmental conditions (D'Andrade, 1994). This approach focuses on the ability of

individuals to adapt in response to societal changes and demands. From an eco-cultural perspective, social structures are created by economic climates and environmental conditions, which, in turn, favour either an independent or interdependent pathway (Berry, 1994). The interdependent pathway observed in collectivist cultures would be an adaptive response to communities with slow changing traditions and economy. In this context, maximising historical continuity is valued and this continuity is enhanced by the transmission of ethno-theories from generation to generation. Ethno-theories refer to the way children are raised in accordance with culture. Conversely, the independent pathway would be an adaptive response to large urban communities, in fast-growing economies, who value innovation (Keller & Greenfield, 2000; Keller et al., 2002b). In larger communities, ethno-theories are influenced by societal changes such as paediatric advances and technologies. Consequently, the ethno-theories vary between generations (Hewlett & Lamb, 2002). From this perspective, the way individuals are raised in a culture reflects an interaction between society and culture. The eco-cultural approach stresses the adaptation aspect of culture and provides explanations for the need for such cultural habits.

Socio-historical approach

Greenfield's third approach is socio-historical, as it accentuates the processes of social construction (Cole, 1996; Maynard, 2002; Vygotsky, 1962). Social construction can be defined by explicitly taught cultural practices, activities or even tools (Cole, 1996; Saxe, 1991; Vygotsky, 1962). Socio-historical researchers take an interest in explaining cognitive development (Greenfield et al., 2003). From a socio-historical perspective, cognitive skills are culture-bound as children are guided in their development by 'cultural' experts and peer interaction (Maynard, 2002). To illustrate the significance of a socio-historical approach, Mistry and Rogoff (1994) showed that memory could be viewed as a context-specific activity rather than a context-free skill. Culture supported recall performance and word familiarity. A

meta-analysis by Smith and Vela (2001) reviewed 75 studies and concluded individuals had better recall performance when stimuli that were presented to them were culturally relevant, thereby highlighting the importance of context for memory. In a separate and related study, Westerners recalled a list of words or pictures they were familiar with better compared to non-Westerners (Cole & Scribner, 1977; Wagner, 1981). Similarly, Japanese expert abacus users had an extended memory span of 15 digits but performed with average recall capacity when tested on Roman alphabet or fruit names (Hatano, 1982). These experiments emphasise the importance of culture and context on tasks, which had been previously believed to be culturally independent. Often social construction takes the form of situation-specific activities and if cognitive skills are influenced by culture, then social interaction would also be shaped by culture (Greenfield et al., 2003).

Cultural value, eco-cultural and socio-historical approaches served as backgrounds for Greenfield's exploration of cultural influences on the developmental tasks of relationship formation, knowledge acquisition and autonomy. Relationship formation occurs during infancy between babies and their mothers, and this crucial stage sees the development of attachment. Knowledge acquisition becomes an important task during childhood, with children entering the schooling system. Autonomy refers to the transition occurring during adolescence, when children step away from their parents and start moving towards a broader social circle. The choice of these specific three tasks offers a broad overview of the development span and can illustrate the two cultural pathways of independence and interdependence.

Relationship formation

In the interdependent pathway, relationship formation occurs through constant contact, babies are being carried most hours of the day and it is culturally expected that infants would share a bed with their mothers (Keller et al., 2002; Shweder et al., 1998; Yovsi, 2001). This

constant contact is deemed essential and is believed to foster the acceptance of parental values (MacDonald, 1992; Radke-Yarrow et al., 1983). In order to transmit the priority given to the community over the individual, collectivist communities often do not attend immediately to a child showing distress (Japan, Rothbaum et al., 2000; Cameroon, Yosvi, & Keller, 2000; India, Saraswathi, & Pai, 1997). Furthermore, in this pathway, the boundaries between self and others are made to be blurred and the child is being trained to understand that the self is part of a broader community, which tends to have priority over the individual's needs. Therefore, infants would assess both self and others in their formation of bonds.

Conversely, in the independent pathway, attachment theory (Bowlby, 1969; Ainsworth, Blehar, Waters, & Wall, 1978) is widely accepted as the core of a conceptual approach to relationship formation. Attachment theory proposes that attachment forms between parents and children in the first 24 to 36 months of life (Bowlby, 1969). This attachment pattern is set to be predictive of children's capacity for intimacy, and their ability to regulate their emotions, self - concept and feeling worthy of love. A key study in attachment theory is the strange situation. This involves the observation of an infant's reaction to being left alone with a stranger by his or her mother in an experimental room and, after sometimes the mother returns (Ainsworth et al., 1978). The infant's response to separation and how enthusiastic he/she is upon the mother's return reflects the infant's attachment style. Three styles of attachment were identified by Ainsworth et al.: one secure and two insecure styles. *Secure attachment* is characterised by a child who would be distressed by his or her mother's departure but would be able to return to play left alone with a stranger in the room and get excited upon his/her mother's reappearance. Insecure attachment takes two forms: *insecure-ambivalent* and *insecure avoidant*. A child who was extremely distressed upon his/her mother's departure, would show signs of fear towards the stranger and would show signs of resistance when the mother returns. This would be illustrative of an insecure

ambivalent attachment style. In contrast, insecure-avoidant attachment is characterised by a child who would not show signs of distress upon the mother's departure, would play normally around the stranger and would show little interest in his mother's return.

In an independent culture, a child who would be able to return to play left alone in the room and become excited upon his or her mother's reappearance is identified as securely attached (Ainsworth et al., 1978). In Western cultures, babies are not in close body contact with their mothers continuously. Parents would, in fact, regard a child who can sleep alone in a positive way (Keller et al, 2002a; Morelli et al, 1992). To reinforce the independence pathway, children may be directed to develop an attachment to inanimate objects including cloths, blankets, and toys, and are encouraged to demonstrate their autonomy by safely exploring the environment (Keller et al, 2002b; Rabain-Jamain & Sabeau-Jouanet, 1997). In an interdependent culture, these behavioural expectations would be inconsistent with cultural norms as most mothers would rarely be separated from their baby (Morelli et al., 1992; Shweder et al., 1998; Yovsi, 2001). Therefore, the formation of bonds appears to differ between the independent and interdependent pathway.

Knowledge acquisition

Regarding knowledge acquisition, both pathways differ from what is culturally perceived as meaningful and useful (Greenfield et al., 2003). In Western cultures, Piaget's work is considered as the classical theory of intelligence (Piaget, 1963, 1977). Piaget emphasised the development of scientific thought as a developmental goal. Greenfield et al. (2003) claimed that scientific intelligence is related to the independence pathway as it accentuates the relationship between a person and the world of objects. As previously stated, infants are directed towards toys to entertain themselves, therefore caregiving practices align with the values fostered by society (Greenfield et al., 2003). As such, this type of intelligence

not only equips individuals with a way of thinking but also develops the appropriate skills to strive in their environment.

In contrast to Piagetian theory, Nsamenang's theory of intelligence is focused on social intelligence (Nsamenang, 1992). This theory presents the most comprehensive model of cognitive development in Africa. Nsamenang outlined the different social roles required to be attained as part of the development of young Africans. The skills valued in African culture appear to be mainly with a social purpose (Dasen, 1984). An illustration of this concept can be seen in the different types of intelligence valued by the Baoule (a community of the Ivory Coast). In this community, *O ti kpa* is a key feature of intelligence, and it means to be willing to help, having a sense of service, responsibility, initiative and know how. Another important feature of the intelligence model of this community is *O si hidjo*, which relates to the ability to tell a story with precision to others in a community and to use proverbs. Although, school intelligence, *O si floua,* is also present in that model and the emphasis is on the intelligence type and the skills that would benefit the community as a whole. As such, a cognitive skill such as intelligence can be shaped by the environment.

Autonomy

The last task examined by Greenfield et al. was that of autonomy (2003). When adolescence begins, individuals from Western backgrounds benefit from more autonomy earlier than their non-Western counterparts (Feldman & Rosenthal, 1991). The independent setting allows children to go out, to start dating and to affirm their personality through clothing or music, earlier and in a more pronounced way than the interdependent pathway. This difference is reflected in the parenting style adopted in both pathways. Clinical and developmental psychologist, Baumrind (1967), worked extensively on parenting styles and devised a classification of three categories. The first category refers to a *permissive parenting style*, which is characterised by a non-punitive attitude. The parents respond to the child's

needs but do not take responsibility in shaping the child's behaviour, and in this context, the child is not expected to meet parental standards. The second category is called *authoritarian parenting style*, which emphasises obedience to and respect for conformity. Parents using the authoritarian style have the tendency to value traditional order, enforce their view onto the child, and use punitive methods to shape the child behaviour. The role of the parents focuses on discipline and adherence to culturally desirable norms (Chao, 1994). The last category is the *authoritative parenting style*, which provides the child with a set of rules but fosters autonomy and a supportive relationship. The parent tends to set rules and expectations but would not restrict the child to absolute standards, as do the authoritarian parenting style. In this context, children are encouraged to develop their own interests and autonomy. In an independent culture, parents tend to engage in authoritative parenting styles, whereas in an interdependent culture, authoritarian parenting styles are most frequently used (Chao, 1994, 2001; Keshavarz & Baharudin, 2009; Greenfield et al., 2003). The outcomes of parenting styles were also shown to differ across cultural settings as authoritative was found to be fostering positive adjustment and higher academic achievement for Western youth. However, for non-Westerners, authoritarian parenting styles were associated with higher performances at school (Chao, 1994, 2001; Keshavarz & Baharudin, 2009)

In a similar manner, the expectations put on adolescents regarding duties at home vary greatly between the two pathways. An interdependent culture would expect adolescents to take on more responsibilities in the household and growing up is associated with newer obligations within the family system (Fuligni, Tsen & Lam, 1999; Zhou & Bankston, 1998). In contrast, in independent cultures, adolescence is accompanied by more freedom (Greenfield et al., 2003).

These three examples illustrate the influence of the independent and interdependent pathways on the three milestones of development and demonstrate the impact of culture on

tasks previously thought to manifest in a similar manner in human development. However, these illustrations are restricted to the antithetic independent and interdependent pathways, representative of individualistic and collectivist cultures, which is the perspective often adopted in cross-cultural research. Although an interesting approach, some limitations can be noted and are addressed hereunder.

Collectivism versus individualism debate

Greenfield et al. (2003) outlined a range of different approaches by which culture influences individual development. Their review was based on the underlying assumption that culture would be either collectivist, with individuals thriving towards interdependence, or individualistic, with individuals thriving for independence. Many studies in cross-cultural psychology shared this assumption (Brett & Okumura 1998; Earley 1989, 1994; Hui, 1989; Kwan, Bond, & Singelis, 1997; Oishi, 2000). This research debated this idea.

Values of independence and interdependence may co-exist within the same culture, with different sections of the population embracing different values (Killen & Wainryb, 2000; Raeff, 1997). Although for ease of expression these terms were used interchangeably in the previous section of the study, there is current of thoughts that differentiate between individualism and independence, and collectivism and interdependence. This means that in all cultures a certain amount of independence and interdependence is present (Killen, 1997, Raeff, 1997). Individuals develop in their environment by being socially connected to others and simultaneously physically separated, with their own personal characteristics. Accordingly, the pathways of independence and interdependence are intertwined in all human functioning (Raeff, 1997).

The historical construction of a culture leads to values of individualism or collectivism being more salient in that specific culture and therefore independence and interdependence

pathways are being shaped by this process (Raeff, 1997). In an individualistic context, values of interdependence take the form of cooperation, negotiation and egalitarianism, while the values of independence are used to shape and express the pursuit of personal goals within a collectivist context (Raeff, 1997). An illustration of this idea can be seen with France and Australia both sharing individualistic cultural values and therefore presenting with similarities in how these values are enacted through the independence and interdependence pathways. For instance, both countries highly value freedom of speech and have laws warranting this right. However, because France and Australia have a very different history, it is likely that there are some differences in the way independence and interdependence pathway are expressed in the two settings. Although both countries value fair work and negotiation between professional parties, in a period of conflict, Australia tends to follow systematic and organised steps to come to an agreement. In contrast, France has a history of taking its social conflict to the street, which often leads to massive strikes that immobilise the entire country. With this example, we can see that within individualistic cultures, values are enacted in different ways. Raeff (1997) had called for further research investigating the similarities and differences within individualistic cultures.

It may be further argued that the claim a culture is either individualistic or collectivist is both simplistic and reductionist in its representation of the richness and subtleties of a culture (Killen, 1997; Killen & Wainryb, 2000; Raeff, 1977). Killen (1997) pointed out that using this terminology to define a culture led to stereotypes and implied that individuals in one culture setting would behaviour homogeneously. However, culture is shaped by an interactive process, in which cultural practices and meaning are constantly being constructed and negotiated by agents of that culture (Killen, 1997; Raeff, 1977). As such, it is important to consider the intra-variability of a culture and recognise that individuals within a cultural setting may hold opposite values and not be familiar with every aspect of that culture (Raeff,

1997). Cross-cultural studies often present conflicting results (Chan, 1994; Fiske, 2002; Oyserman, Coon & Kemmelmeier, 2002). For example, Oyserman et al. performed a thorough meta-analysis of 83 studies investigating individualism and collectivism. They identified four major methodological issues and sampling issues present in reviewed studies. These were inappropriate units of measurement, flawed operationalisation of the variables, lack of cross-validation of instruments used and sampling limitations (refer to chapter 3 for a review on challenges posed by cross-cultural research).

Hofstede's cultural indicators applied to Australia and France

Hofstede's work (1980) is one of the most cited investigations in social science (Bond, 2002; Hofstede, 1997; Jones, 2007) and provides cultural indicators against which countries can be measured. In the mid-1960s, Hofstede worked as a research director at IBM (referred to as HERMES in his book, *Culture consequences*, in reference to the Greek God), and used to survey employees from the firm in a stratified manner across 40 countries. In an effort to standardise the yearly employee evaluation, Hofstede designed the first international questionnaire, which originally consisted of 180 items and was later reduced to 32 items. Using eclectic analysis Hofstede identified two factors; power distance and uncertainty avoidance. Subsequently, Hofstede factored the occupations of the participants and the score of their country in an ecological factor analysis[3] and the two factors of individualism and masculinity emerged.

These four dimensions are on a spectrum and countries vary on them[4]. The first dimension is *power distance,* which means that within an environment, individuals accept that power is distributed unequally, and to an extent that, this discrepancy determines their behaviours. Countries scoring high on power distance denote the presence of inequality and

[3] Ecological factor analysis refers to a qualitative analysis of data used to identify factors.
[4] Hofstede's cultural indicators are recorded on a 0 to 100 scale.

hierarchical order. The second dimension is *uncertainty avoidance* and refers to the creation of beliefs and institutions to remedy the fear caused by ambiguous or unknown situations. Countries scoring high on uncertainty avoidance would have established rigid codes and rules, and would be resistant to new ideas, as it could lead to uncertainty. The third dimension is called *individualism* and denotes the extent to which individuals of an environment are interdependent. Countries scoring high on individualism prioritise the individual over the community, and personal interests are a priority. The fourth dimension is *masculinity*, which evaluates individuals' motivations within an environment. Countries scoring high on masculinity tend to promote competition and success over nurturance and quality of life.

A three-factor solution was yielded when the data was analysed altogether with an ecological factor analysis, and power distance merged with individualism, as both dimensions correlated strongly (r = -.67). However, Hofstede decided (rightfully) to treat these dimensions as separate, for two main reasons. First, as described earlier, power distance and individualism are conceptually different. Second, although the two dimensions share a strong negative correlation, this is not true for all countries. For instance, France and Belgium proved to be high on both domains, while Austria and Israel were very low on power distance and medium on individualism. Therefore, treating these two dimensions as one would not allow for these patterns to be investigated (Hofstede, 1980). Hofstede's work offers insight into the cultural parameters of countries.

Figure 2 illustrates Australia and France on the four cultural indicators provided by Hofstede's research. France scored higher than Australia on power distance and this is reflected by a hierarchical society. In terms of individualism, the two countries were relatively high, with Australia scoring higher. Considering that these countries are westernised, this was expected. The same pattern was observable for masculinity, but with relatively lower scores. In regard to uncertainty avoidance, France scored much higher than Australia. The

combination of France being lower on masculinity and higher on uncertainty avoidance was exemplified with work laws in France being stricter than Australia and with less incentive to achieve higher and compete.

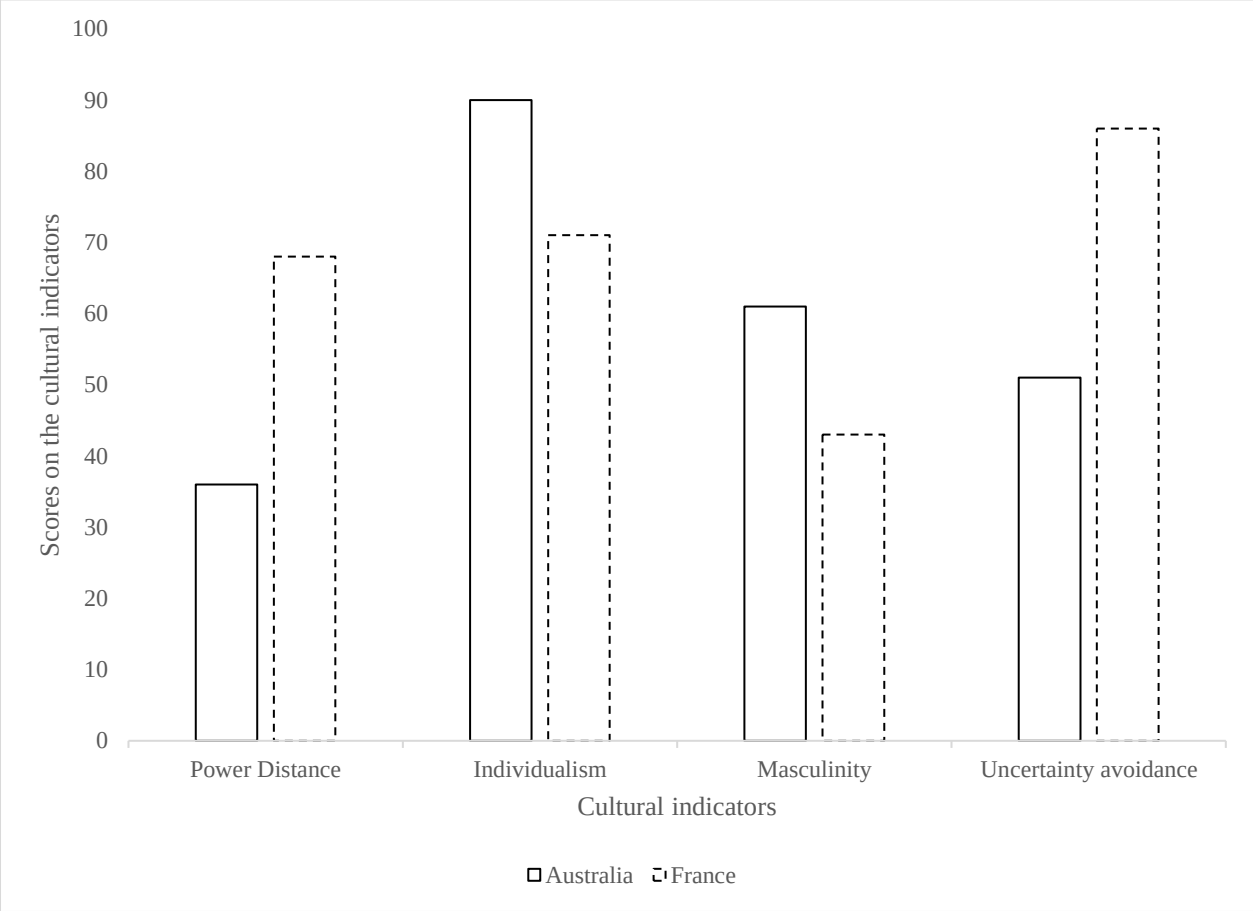

Figure 2. Hofstede's cultural indicators for Australia and France (adapted from Hofstede-Insights.com)

Summary of chapter one

This introductory chapter reviewed the major theories in developmental psychology. These theories provide an understanding of human development during adolescence, and covered several domains, including cognitive, social, and identity formation. The most significant theory for this research was the Ecological System Theory, which considered the influence of environment and culture, in a broader sense, on the development of individuals. This chapter provided evidence of the influence of cultural aspects on milestones of

development and offered a foundation of understanding from which this research extended. Furthermore, an argument was presented to compare two Western countries, namely France and Australia, stating that examining two cultures that were seemingly similar would highlight the subtle influence culture has on adolescent development.

The research documented environmental influences on adolescent development. It aimed to refute both the universalism approach and the dyadic individualism and collectivism argument regarding culture. If cultures differ solely on the individualism and collectivism parameters, no differences in development should be noted among French and Australian youth. However, this project suggested that culturally dependent outcomes influencing adolescents' development would be revealed from the current investigation. The following chapter presents an extensive review of adolescent well-being.

Chapter 2

Well-being in Adolescence

Chapter one offered a theoretical conceptualisation of adolescence and argued that adolescent development was the result of the interaction between individuals and their socio-cultural environment. This chapter defines the variables of interest in this research investigating adolescent development cross-culturally and highlights the challenges faced by current research in studying adolescent development. A review of the existing literature on adolescent well-being is presented, followed by a critical analysis of the current instruments that aim to measure adolescent well-being.

Although adolescent adjustment is considered a key element of adolescent development (Darling, Caldwell, & Smith, 2005; Gould, Hussong, & Keeley, 2008; Laible, Carlo, & Raffaelli, 2000; Patterson & McCubbin, 1987), there is no clear definition of adolescent adjustment. The focus of research has been on adjustment disorders and the consequences of poor adjustment (Gilman & Huebner, 2003). As a result, adjustment has been conceptualised by researchers as the absence of psychopathology (Bryden, Field, & Francis, 2015). However, there is no literature that supports the position that the absence of psychopathology equates to positive adjustment. Investigations have operationalised adjustment in different ways and consequently, it is unclear whether different investigators are describing the same phenomenon. For instance, Storksen, Roysamb, Holmen, and Tambs (2006) used behavioural and psychological outcome variables of adjustment, namely: distress symptoms (recorded as anxiety and depression scores), subjective well-being, and school-related problems (e.g. academic, conduct and dissatisfaction). In contrast, Kerr, Stattin, and Ozdemir (2012) investigated adolescent adjustment operationalised as school problems, externalising problems (delinquency, loitering on the streets and intoxication frequency), internalising problems (low self-esteem and depressed mood) and information management (disclosure and secrecy). Somerfield and McCrae (2000) pinpointed the conceptual issue of adolescent adjustment was reflected by the scarcity of existing measures in the field. It appears that adjustment is the result of the coping

responses used by the individual, yet the lack of appropriate measures reflects only a modest understanding of the adolescent coping model (Gould, Hussong, & Keeley, 2008).

Adolescent adjustment and coping

Coping is viewed as a response to a stressor (Folkman & Lazarus, 1988). There are two approaches to this phenomenon: the evolutionary approach and the ego-psychological approach. In the *evolutionary model*, coping is characterised by learned behaviours that allow for survival in life-threatening situations (Miller 1980). From the *ego-psychological* perspective (Vaillant, 1977), coping comprises of cognitive processes to manage or decrease negative emotions and negative cognitive states. Denial, avoidance, or problem-solving behaviours are examples of coping mechanisms (Folkman & Lazarus, 1988). Coping is seen as a dynamic process that simultaneously influences the person and the environment (Folkman & Lazarus, 1984). Accordingly, an investigation of adolescent adjustment must investigate both the context in which the behaviours take place and the adolescent`s coping strategies. Folkman and Lazarus (1988, p. 467) have argued that a stressor cannot be taken out of context as the appraisal of this stressor would depend on “the significance of the person-environment relationship for the individual well-being and the available options for coping”. This means that the same person could use a different response to the same stressor based on the situation in which they face that stressor. Further, Gould et al. (2008) demonstrated that the intra-personal variability in coping styles among adolescents accounted for 31 to 63 percent of the variance. In their research, they suggested that coping styles, especially in adolescents, should not be seen as *static*, but rather that the coping strategy chosen by an individual at a certain time was highly reliant on the appraisal process and the type of stressor. Results from this study further supported the need for consideration of environmental situations when investigation adolescent adjustment.

Research has established that coping strategies influence both the physical and mental health of children and adolescents (Aldridge & Roesch, 2007; Compas, Connor-Smith, & Compas, 2004; Garnefski, Koopman, Kraaij, & Cate, 2009; Garnefski, Rieffe, Jellesma, Meerum Terwogt, & Kraaij,

2007; Hampel & Petermann, 2006; Sanchez, Lambert, & Cooley- Strickland, 2013). Positive coping strategies, such as accommodation, have been shown to be positively correlated with well-being (Thomsen, Fritz, Moble, & Greve, 2015). In contrast, rumination, a negative coping strategy, has been associated with negative health outcomes (Webb, Miles, & Sheeran, 2012).

The combination of well-being and coping style has been linked to outcomes such as academic and social competence (Clarke, 2006), physical health (Steiner, Erickson, Hernandez, & Pavelski, 2002) as well as to internalising and externalising symptoms (Wadsworth, Raviv, Compas, & Connor-Smith, 2005). Further, Chen, Ma, and Fan (2009) demonstrated that problem-focused coping mediated the relationship between social support and well-being. The mediating role of coping has also been found between family conflict and adolescent adjustment (Wadsworth & Compas, 2002) as well as between poverty-related stress and psychological symptoms (Wadsworth et al., 2005). Well-being and positive coping mechanisms have been linked to emotional adjustment, fewer behavioural issues, lower depression and anxiety symptoms as well as fewer substance use issues (Hoyt, Chase-Lansdale, McDade, & Adam, 2012). In contrast, poor well-being and the maintenance of negative coping mechanisms such as avoidant or non-productive coping have been associated with increased mental illnesses and long-lasting adaptation issues (Espelage, Hong, Rao, & Low, 2013).

Because of the importance of well-being and coping in the development of the adolescent, this research aimed to investigate the relationship between these variables. The first part of this work focused on well-being and the development of an instrument intended to measure well-being in adolescents. Addressing coping constituted the second part of the research and so coping was introduced in chapter seven. The review of the literature indicated that existing measures of adolescents coping were adequate and therefore this study did not extend to the creation of an additional instrument measuring adolescent's coping. The next section presents a historical perspective on well-being.

Historical perspective on Well-Being

Towards the end of the 19th century and during the early years of the 20th, Gestaltism (von Ehrenfels, 1890), behaviourism (Watson, 1913) and psychoanalysis (Freud, 1890) were the main currents of thought regarding effective human functioning. Gestaltism was cognitive and focused on top-down processing and did not encompass the dealing with emotion in its approach. Behaviourism eschewed mental states and only considered observable behaviour (Watson, 1913). The psychoanalytic perspective was more engaged with mental states, although emotional responses were perceived as an outcome from rather than a contributor to behaviour.

The first empirical study of mood and emotional responses was by Flugel in 1925. In his exploration of human emotional states, Flugel asked nine subjects to label and record the intensity of their feelings for a period of 30 days. Data analyses revealed that positive feelings were experienced more frequently than negative feelings. From this work, it was possible to establish what mental states (e.g. interest, joy, contentment, and pleasure sensations) were important to the emotional life of individuals. Soon after, the first study of mood induction was conducted and demonstrated the importance of emotions in cognitive processing (Sullivan, 1927). Sullivan found that children who were exposed to failure were slower to learn new material. This constituted a starting point for scholars to take an interest in the role of emotions in cognition and behaviour (Diener, Oishi & Lucas, 2009; Hersey, 1932; Johnson, 1937; Stoll, 2014). After the Second World War, the interest in emotions continued with Gallup and Cantril polling global populations about happiness and life satisfaction (Diener, Lucas, & Oishi, 2002). Scientists (Boehm, 1955; Jones, 1942) considered the value of happiness in mental health, which had previously not been investigated because only the ill had received attention. Researchers in the field wanted to see past the absence of symptoms to define mental health (Jahoda, 1958). The disease model was the prevailing conceptualisation of health and the lack of symptoms was understood as positive health (Park, 2004). However, Jahoda (1958) advocated that avoiding psychopathology was not enough to promote health and that attention to

positive aspects of mental health was much needed. It was in the 1960s that the study of happiness became a more central topic (Stoll, 2014). Wilson (1967) published a work on the correlates of happiness, which served as a framework for the empirical studies of happiness in the field of psychology. The distinction between happiness, objective well-being and subjective well-being was, and to some extent still is unclear. Objective well-being refers to the objective living conditions of individuals such as education level, income, neighbourhood (Park, 2004). Happiness and subjective well-being were being used interchangeably, and still are (Diener, 1994; Myer, 1993; Proctor, Linley & Maltby, 2009; Seligman, 2004). It is with Bradburn (1969) that the model of subjective well-being started to be better understood. The representation of emotional states prior to Bradburn (1969) was impoverished. It was generally thought that emotion was a unidimensional continuum, with emotion varying from positive affect (happy/elated) to negative affect (sadness/depression; Stoll, 2014). As such, it was assumed that those experiencing high levels of positive emotions would experience very few negative emotions, and vice versa. Bradburn (1969) however, argued that positive and negative emotions were not the poles of a single continuum, and they were not opposite to one another. Bradburn (1969) demonstrated that experiences of positive and negative emotions were on two distinct continua, which were not contingent upon each other. Thereafter, the definition of subjective well-being became clearer and a plethora of studies was published (Myers & Diener, 1995). Finally, the field of positive psychology was born (Seligman & Csikszentmihalyi, 2000).

Subjective Well-Being

The appraisal of Subjective Well-Being (SWB) was categorised into two components: *cognitive wellbeing*, which has been referred to as life satisfaction (Diener, 1984, 1998) and *emotional wellbeing*, defined with positive and negative affect. Researchers tend to agree that SWB is characterised by high levels of positive affect, low levels of negative affect and overall satisfaction

with one's life (Diener, 1984). The emotional and cognitive components, although not orthogonal[5], are distinct from each other. It is therefore possible to experience positive feelings yet to be dissatisfied with a specific aspect of life. This distinction was found to be true in adults and children (Diener et al., 1999; Huebner, 1991; Rees & Main, 2015). Using Bronfenbrenner's Ecological Systems Theory, a student may enjoy coming to class while experiencing negative emotions in regard to family interactions. The variety of experiences with different life domains suggests that instruments measuring well-being should be multidimensional (Kern, Waters, Adler, & White, 2015).

Cognitive component

The cognitive component of SWB, life satisfaction, is perhaps more often studied in the literature than the emotional component, for three reasons. First, life satisfaction incorporates and goes beyond the range of affect, and consequently, it adds unique variance to the measurement of individuals' appraisal of their lives (Gilman & Huebner, 2003; Park, 2004). Second, the measure of life satisfaction is also more stable over time than a measure of feelings (Pavot & Diener, 1993; Suldo & Huebner, 2004). Third, levels of life satisfaction were found to predict significant life outcomes such as health status (Mroczek & Spiro, 2005), engagement in social activities (Venhoven, 1988), and academic success (Heffner & Antaramian, 2016). A longitudinal study using an Australian population, showed that reporting higher levels of life satisfaction affected the chance of getting married (Marks & Flemming, 1999).

Life satisfaction was found to be evaluated differently across cultures (Park, 2004). Specifically, researchers on adolescent life satisfaction reported that school satisfaction was the most important predictor in life satisfaction for Korean children, whereas satisfaction with self was the strongest predictor for their American counterparts (Diener & Suh, 2000). Cultural differences were also reported when comparing adolescents from Iran, Jordan and the United States of America (USA;

[5] Orthogonal – statistically uncorrelated or independent constructs. In a strict mathematical sense variation within expression of one component is uncorrelated with the level of expression of another construct.

Brannan, Biswas-Diener, Mohr, Mortazavi & Stein, 2013). Only the USA sample presented with significant associations between support from friends and all the components of SWB. For Iran and Jordan, family was of much more importance. Additionally, levels of life satisfaction vary across cultures with American (Park & Huebner, 2005) and Danish (Ferguson, Kasser & Jahng, 2010) adolescents reporting higher life satisfaction than Korean. A study dating back to the mid-1990s compared levels of life satisfaction across several Western countries. Differences were also observed with French and French-speaking Swiss adolescents consistently scoring lower than their peers from the USA, Germany, Norway, German-speaking Switzerland, and Finland (Grob, Little, Wanner, Wearing, & Euronet, 1996). These findings support the argument that Western countries hold important cultural differences, and these could be sources of the discrepancies noted between the levels of life satisfaction. It was of interest in the present study to observe whether French and Australian youth differ on their levels of life satisfaction.

Affective component

The emotional component of SWB, affect, comprises positive affect and negative affect. Similar to life satisfaction, positive affect and negative affect are indicative of positive development. Individuals reporting a high level of positive affect showed improved job outcomes (Nickerson, Lucas, & Sandvik, 2002; Verkley & Stolk, 1989), job satisfaction (Connolly & Viswesvaran, 2000), reported fewer physical complaints (Roysamb, Tambs, Reichborn-Kjennerud, Neqale, & Harris, 2003), and had more fulfilling marriages (Matekaasa, 1994; Diener, Gohm, Suh, & Oishi, 2000). Positive affect was linked to higher rates of mental health (Diener & Seligman, 2002). Individuals reporting high levels of negative affect also reported high levels of guilt proneness, obsessive-compulsive disorder, depression, and anxiety (Diener & Emmons, 1984). In contrast, negative affect was correlated with lower self-confidence and self-esteem (Diener & Emmons, 1984).

Comparable to life satisfaction, affect was found to differ across cultures. In individualistic societies, there was a tendency for individuals to strive towards independence (Markus & Kitayama,

1991). Individualistic cultures promote distinct qualities in people; and emotions, personal attributes and beliefs are considered the defining feature of personal identity and assessment of self (Suh, Diener, Oishi, & Triandis, 1998). Consequently, the experience of affect tends to be strongly linked to well-being in the individualistic context. In contrast, individuals in collectivist cultures tend to put their own feelings into perspective. Feelings for others and cohesion between individuals account for a significant portion in the perception of affect, and consequently the assessment of self and well-being tend to be more global (Markus & Kitayama, 1991; Suh et al., 1998). In individualistic societies, emotion is said to be ego-focused whereas in the latter, emotion is considered others-focused (Markus & Kitayama, 1991). Individualistic cultures were shown to have strong associations between affective experience and well-being, whereas collectivist cultures often presented with weaker associations (Suh et al., 1998). Therefore, the emotional component of SWB, affect, was found to be culturally dependent (Diener & Suh, 1999). As previously stated, cultural research focused on comparing individualistic and collectivist cultures, investigating the cultural differences in similar Western societies. Comparing two individualistic cultures, Australia and France, on affect could lead to identifying aspects of the culture fostering positive emotions and reducing the experience of negative emotions.

The literature demonstrated the important contribution of SWB to the overall quality of social and personal life of individuals (Veenhoven, 1988) and future outcomes (Suldo & Huebner, 2004). SWB was positively associated with physical health and healthy behaviours including exercise and healthy eating (Frisch, 2000), internal locus of control (Huebner, 1995), high self-esteem (Huebner, 1995), self-efficacy and self-reliance (Greenspoon & Saklosfke, 2001), optimism (Ben-Zur, 2003), development of resilience (Sagone & De Caroli, 2014), and prosocial behaviour (Gilman, 2001). Additionally, SWB was reported to act as a buffer against stress (Park, 2004) and a predictor of future decisions and important life outcomes (Oishi & Sullivan, 2006; Writz, Kruger, Scollon, & Diener, 2003). It was also suggested that high levels of SWB could protect adolescents from

psychopathology (Eryilmaz, 2010; Park, 2004). Finally, SWB was relevant in clinical fields because strong negative associations existed between SWB and psychological and relationship issues (Diener et al., 2000; Morry, Sucharyna, & Petty, 2018). SWB was found to be negatively correlated with depressive episodes and dysfunctional relationships (Diener et al, 1999; Furr & Funder, 1998).

Definition of adolescents' SWB

A search conducted on PsychInfo on the 2nd of November 2017 revealed a total of 29,323 articles published for the keywords "well-being", confirming that the interest in positive psychology had produced a vast array of publications in the field. Although adults' SWB has been thoroughly researched, adolescents' SWB remains under-researched (Gullone & Cummins, 1999; Hoyt et al., 2012; Proctor et al., 2009; Tian, Zhang, & Huebner, 2015). Often, when adolescents' well-being is examined, it is through a negative lens where the question is more often formulated as "What negatively affects adolescent well-being?" rather than "What factors contribute to adolescent well-being?". A search on PsychInfo undertook on the 2nd of November 2017 yielded 9,160 results for the keywords "adolescent mental health"', and this contrasted with only 1,441 results for the entry 'adolescent well-being'. Well-being is most commonly expressed in terms of the absence of maladaptive coping behaviours (e.g. substance abuse, violent behaviours; Bryden, Field, & Francis, 2015; Frydenberg, 2008; Hoyt et al., 2012). In a national survey of mental health and well-being in Australia, well-being was characterised as the absence of "mental disorder" (Sawyer, Kosky, Graetz, Arney, & Kubrick, 2000). Because researchers have focused on the negative aspects of adolescent mental health, their definition of well-being has been limited to the absence of symptoms. It is argued in this study that an availability heuristic has reduced the scope of investigation in adolescent mental health. Hence, the positive characteristics of SWB are still not clearly defined. It was concluded that the understanding of SWB in relation to adolescents, was deficient, and the current project aimed to address this deficiency by developing an instrument measuring SWB using multidimensional domains guided by both the literature and feedback provided by adolescents during

pilot studies. The next section of this chapter reviews the existing literature regarding adolescents' well-being and highlights the importance of the need for research in this field.

The significance of adolescent SWB.

SWB has been demonstrated to be an important indicator of positive life outcomes in adults (Suldo & Huebner, 2004). SWB is critical during adolescence, marked by the pivotal period of transition from puberty through to adulthood (Steinberg, 2008). Adolescence is characterised not only by physical changes such as growth spurts, but also by psychological and societal changes such as identity formation, and assuming society-informed adult roles (Erikson, 1968). It is also during adolescence that experiencing negative life events can lead to the disruption of healthy development and reduce SWB (Goldstein & Brooks, 2005) with life-long effects (Rigby, 2000). A 21-month Australian study showed the importance of early detection of negative emotions and symptoms of depression in adolescents (Zadow, Houghton, Hunter, Rosenberg, & Wood, 2017). Their results indicated that the presence of depressive symptoms early in life could hinder the development of positive mental health in adulthood. Additionally, the study suggested that although promoting SWB was important, having positive mental health did not necessarily protect against the development of depression later in life (Zadow et al., 2017). It was therefore important to study SWB and to identify adolescents who could be at risk of low levels of SWB.

Identification of low SWB at a young age could help prevent the later development of psychological distress, addictions, and relationships issues (Park, 2004; Tian, Wang, & Huebner, 2015). Adolescents who report problematic behaviours such as substance use, reported low levels of SWB (Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). Substance use here refers to the consumption of alcohol, cigarettes, and illegal drugs. Furthermore, a longitudinal study of life satisfaction in a cohort of children showed that those with low levels of life satisfaction were at a higher risk of developing depression within two to three years after low life satisfaction had been identified (Lewinsohn, Redner, & Seeley, 1991). Although low life satisfaction does not equal

depression, the study suggested that low level of life satisfaction was a predictor of the development of depression. Positive mental health in Australian adolescents was demonstrated to be linked to better outcomes in adults, including higher career progression, positive romantic relationships, and taking on active roles as citizens (O'Connor, Sanson, Tombourou, Norrish, & Olsson, 2017). Therefore, investigation of SWB in younger populations is warranted, as it would inform regarding the process of adjustment in youth.

Levels of life satisfaction among children and adolescents tend to be positive (Huebner, Drane and Valois; 2000; Leung & Zhang, 2000). Huebner et al. (2000) found that of 5,544 adolescents, 73 percent reported generally positive life satisfaction, with ratings ranging from *mostly satisfied* to *delighted*. The collapsing of the categories of mostly satisfied and delighted spans a very broad level of endorsement but it does indicate a generally positive attitude. These findings were consistent internationally, examples being in Australia (Cummins 1997b), South Korea (Park, 2005), Portugal (Neto, 1993), Canada (Greenspoon & Sakloske, 1997), Spain (Casas, Alsinet, Rossich, Huebner, & Laughlin, 2001), and China (Leung & Zhang, 2000). However, this was not true in all cases. Around 11 percent of the Huebner et al.'s sample rated their life satisfaction as *mostly dissatisfied* to *terrible*. Additionally, as adolescence progresses, levels of life satisfaction were found to decrease in several international samples, such as studies conducted in the USA (Suldo & Huebner, 2004b), Israel (Ullman & Tatar, 2001), South Korea (Park, 2005), and China (Chang, McBride-Chang, Stewart & Au, 2003). Mental health concerns were also shown to appear during adolescence (Bayer et al., 2018; Patton et al., 2014; Paus, Keshavan, & Giedd, 2008). In an Australian adolescent sample, mental health concerns were positively associated with age (Cummins, 1996). This finding was replicated in Spain (Cassas et al., 2009) and in the USA (Keyes, 2006). This marked decrease in life satisfaction among youth is worthy of attention.

Several studies (Huebner et al., 1999; Jin & Moon, 2006; Suldo & Huebner, 2004) attributed this decrease to greater stress, especially from scholastic pressures, faced by older adolescents (15-18

years old versus 12-14 years old; Cummins, 1996). Academic demands and the pressure to succeed were suggested to be the driving forces causing stress in older adolescents (Jessor, 1993). The weight of school satisfaction in overall SWB was found to increase with age (Huebner et al., 1999; Jin & Moon, 2006; Suldo & Huebner, 2004).

Existing literature on adolescent SWB

As previously discussed, SWB comprises of a cognitive component and an emotional component, life satisfaction and affect respectively. Although life satisfaction and SWB are different, the literature has used the terms interchangeably (Morris, 2012; Veenhoven 2012 a, b). Some researchers have claimed to measure SWB, while disregarding affect. For instance, the Personal Wellbeing Index - School Children (PWI-SC; Tomyn & Cummins, 2011) does not include items pertaining to positive and negative emotions. SWB is used as an umbrella term and does not represent a singular construct which is uniformly representative of a particular traditional model of well-being. Consequently, for ease of expression and to model the literature, this research uses SWB to refer to studies using both life satisfaction and SWB measures.

SWB has been studied from seven different perspectives across the age range: (i) demographic variables, (ii) personal attributes, (iii) physical health, (iv) education and occupation, (v) family and social interaction, (vi) violence and risky behaviours and (vii) culture. The findings are presented in the following sections of this chapter, with a subsequent focus on studies that investigated adolescents.

Demographics and SWB

Although the relationship between demographic characteristics and SWB in children and adolescents has been widely investigated, the evidence for the influence of individual characteristics including age, gender and race on SWB is scant. A summary of the outcomes of studies that have explored the relationship between participant characteristics and SWB is presented in Table 3. Age has been found to be negatively associated with SWB in several prior studies (e.g. Adelman, Taylor

& Nelson, 1989; Gullone & Cummins, 1999; Park, 2005). However, this finding has not been universally replicated, and some studies have reported age had no substantial effect on SWB (e.g. Gilman & Huebner 1997; Gilman, Huebner & Laughlin, 2000; Seligson, Huebner, & Valois, 2003). Gender has also been explored as a predictor of SWB in adolescence and has yielded mixed results. Female participants often report higher satisfaction with friends, school, and intimacy (Gullone & Cummins, 1999; Huebner, Drane, & Valois, 2000) when compared to their male counterparts. In contrast, prior research has reported males scored higher than females on safety and material well-being (Gullone & Cummins, 1999; Huebner et al., 2000). In a similar way to age, the relationship between SWB and gender is not universally supported, with many studies reporting no significant associations (e.g.; Adelman et al., 1989; Ash & Huebner, 2001; Dew & Huebner, 1994; Huebner, Suldo, Valois, Drane, & Zullig, 2004). The Australian-French comparison study aimed to address some of the incongruencies in the findings by examining the effect of age on the different domains of well-being. An investigation into the relationship between gender and SWB was beyond the scope of this research.

Exploration of the relationship between SWB and ethnicity has produced conflicting findings. A study by Gilman et al. (2000) revealed that African-Americans reported higher satisfaction with family, self, and overall life satisfaction than Caucasians. This was inconsistent with several studies that found African-Americans reported lower satisfaction with their living environment, friends, and overall life satisfaction when compared with white Americans (Huebner, 1994; Huebner, Drane & Valois, 2000; Huebner et al., 2004). Despite the findings from the aforementioned studies, the majority of prior research did not report differences in life satisfaction between different ethnic groups (e.g. Adelman et al., 1989; Ash & Huebner, 2001; Gilman & Huebner 1997; Seligson et al., 2003) suggesting cultural differences may not have impacted SWB. Cultural influences on SWB required further investigation as these findings contradicted the basis of Bronfenbrenner's theory that served as a background for this research.

Several studies have failed to find a significant association between Socio-Economic Status (SES) and SWB (Ash & Huebner, 2001; Dew & Huebner, 1994; Seligson et al., 2003), suggesting an individual's economic position did not have a significant impact on his or her well-being. However, there were several exceptions, including Gilman et al. (2000) who found that students at the lower end of the social gradient reported higher SWB. This was in contradiction to other studies that have reported a positive correlation between SES and SWB (Adelman et al., 1989; Ash & Huebner, 2001; Shek, 2003, 2005; Wilson, Henry, & Peterson, 1997). These inconsistencies demonstrated the complexity of the relationship between SES and SWB. Veenhoven (2012) proposed that, provided the basic needs of an individual are met, additional financial resources did not significantly impact on youth SWB. This was consistent with research that found homelessness, or the risk of homelessness, to be a significant predictor of low levels of SWB (Bearsley, & Cummins, 1999 & Cummins, 1999). Children and adolescents who were homeless, or at risk of homelessness, were particularly vulnerable to challenges such as the lack of shelter security. The experience of homelessness was a critical factor in life appraisal (Bearsley & Cummins, 1999 & Cummins, 1999). Access to information regarding SES of the French sample was not available, and consequently this variable was excluded from the scope of the study.

Table 3

Participant characteristics and life satisfaction

Constructs	**Findings**	**Study**
Age	No effect	Gilman & Huebner 1997; Huebner 1991a; Gilman, Huebner & Laughlin, 2000; Dew & Huebner, 1994; Ash & Huebner, 2001 Seligson, Huebner & Valois, 2003
Age	Negative correlation with life satisfaction	Park, 2005; Gullone & Cummins, 1999; Adelman et al., 1989; Suldo & Huebner, 2004b; Ullman & Tatar, 2001; Park, 2005; Chang, McBride-Chang, Stewart & Au, 2003; Paus, Keshavan, & Giedd, 2008; Cummins, 1996; Keyes, 2006
Gender	No effect	Gilman & Huebner 1997; Huebner 1991a; Dew & Huebner, 1994; Ash & Huebner, 2001 Seligson, Huebner & Valois, 2003; Huebner, Laughlin, Ash & Gilman, 1998; Huebner, 1994; Huebner, Suldo, Valois, Drane & Zullig, 2004;
Gender	Significant differences between males and females	Gullone & Cummins, 1999; Gilman, Huebner & Laughlin, 2000; Huebner, Drane & Valois, 2000
Race	No effect	Adelman et al., 1989; Gilman & Huebner 1997; Dew & Huebner, 1994; Ash & Huebner, 2001; Seligson, Huebner & Valois, 2003; Huebner, Laughlin, Ash & Gilman, 1998
Race	Significant differences between African-Americans and Caucasian-Americans	Gilman, 2001 Huebner, 1994; Huebner, Drane & Valois, 2000; Huebner, Suldo, Valois, Drane & Zullig, 2004
SES	No effect	Huebner 1991a
SES	Significant differences between low SES and high SES	Bearsley & Cummins, 1999; Elgar, Gariepy, Thorsheim, & Currie, 2017; Dew & Huebner, 1994; Ash & Huebner, 2001 Seligson, Huebner & Valois, 2003; Gilman, Huebner & Laughlin, 2000; Shek, 2003$_b$; 2005$_{b, c}$; Homel & Burns, 1989$_a$; Wilson, Henry & Peterson, 1997 $_c$; Neto, 1993 $_d$

Note. $_a$- Australian Sample, $_b$ – Chinese sample, $_c$ - American sample, $_d$ - Portuguese sample

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Personal attributes and SWB

Adolescence has been previously shown to be a period of identity formation where personal attributes of the individual start to emerge (Erikson, 1963; Steinberg & Morris, 2001). Based on the theories of both Erikson and Marcia, the milestone of identity formation is crucial for the development of the individual and his or her transition to adulthood. The Big Five is a commonly used assessment of personality characteristics and has been used in prior studies evaluating personal attributes and SWB (e.g. Cobb-Clark & Schurer, 2012; Oishi, Taku, Hirano, & Saeed, 2018; Vazssonyi, Ksinan, Mikuska, & Jiskrova, 2015; Zhou, Li, Xian, Yanhui, & Zhao, 2017). The Big Five factors of personality are openness to experience, consciousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1985). Research has shown that personality traits account for a significant portion of the variance in SWB (Diener 1996; Greenspoon & Saklofske, 1997; Fogle, Huebner, & Laughlin, 2002) and that personality traits remain relatively stable across the lifespan (McCrae & Costa, 2008). In addition to these five factors, individuals also differ in motivation, locus of control (LOC), optimism and self-efficacy. Table 4 presents the findings of the most frequently investigated correlates with personal characteristics and SWB. Positive correlates of SWB include self-esteem (Diener & Diener, 1995), self-efficacy (Neto, 1993), extraversion (Fogle et al., 2002), optimism (Pinquart, Silbereisen, & Juang, 2004), goal importance (Hofer & Chasiotis, 2003) and social interest (Gilman 2001). Negative correlates of SWB include neuroticism (Huebner, 1991a), external LOC (Greenspoon & Saklofske, 1997), negative affect (McCullough, Huebner & Laughlin, 2000), depression (Adelman et al., 1989) and anxiety (Gilman & Huebner 2006). There was no association between SWB and superior intellect for gifted children (Ash & Huebner, 1998). Presented in Table 5, the association between these personality variables and SWB varied substantially across studies. There are several possible explanations for the variation in findings between studies, including variation in samples used, and in the instruments used to measure SWB. This presents a limitation regarding the reliability of these outcomes. The current study did not

measure personal attributes in relation to SWB. However, in consideration of the overwhelming evidence presented in regard to the relationships with self-esteem and depression, these two variables were chosen to establish the criterion and divergent validity of the scale developed to measure SWB.

Table 4

Personality, personal characteristics and life satisfaction

Constructs	Findings	Study
Extraversion	Positive correlations ranged from .23 to .48 (*M* = 34.17)	Fogle, Huebner & Laughlin, 2002; Blatny, Millova, Jelinek, & Osecka, 2015; Reese, Myftari, McCanally, Chen, Neha, Wang, Jack, & Robertson, 2016; Salami, 2011; Sankov, 2013
Neuroticism	Negative correlations ranged from .22 to .46 (*M* = 35)	Fogle, Huebner & Laughlin, 2002; Suldo & Heubner, 2006; Huebner, 1991a; Sankov, 2013; Blatny, Millova, Jelinek, & Osecka, 2015; Reese et al., 2016; Salami, 2011
Locus of control	Negative correlations ranged from .43 to .49 (*M* = 46.67)	Huebner, 1991a; Gilman & Huebner 2006; Greenspoon & Saklofske, 1997
Self-efficacy	Positive correlations ranged from .30 to .56 (*M* = 41)	Fogle, Huebner & Laughlin, 2002; Suldo & Heubner, 2006; Neto, 1993; Bradley & Corwyn, 2004
Self-esteem	Positive correlations ranged from .41 to .56 (*M* = 49)	Diener & Diener, 1995; Gilman et al., 2000; Greenspoon & Saklofske, 1997; Gilman & Huebner 2006; Reese, Myftari, McCanally, Chen, Neha, Wang, Jack, & Robertson, 2016
Depression	Negative correlations ranged from .52 to .62 (*M* = 56.50)	Adelman, et al., 1989; Suldo & Heubner, 2006; Greenspoon & Saklofske, 1997; Gilman & Huebner 2006; Reese, Myftari, McCanally, Chen, Neha, Wang, Jack, & Robertson, 2016
Anxiety	Negative correlations ranged from .23 to .34 (*M* = 28.33)	Greenspoon & Saklofske, 1997; Neto, 1993; Suldo & Heubner, 2006; Gilman & Huebner 2006
General self-concept	Positive correlations ranged from .27 to .45 (*M* = 36)	Leung & Zhang, 2000; McCullough, Huebner & Laughlin, 2000
Perceived goal attainment	Positive correlations	Hofer & Chasiotis, 2003; Lekes, Gingras, & Phillippe, 2010; Casas et al., 2004; Kasser, 2004.
Loneliness	Negative correlation (.49)	Neto, 1993
Optimism	Positive correlation (.58)	Pinquart, Silbereisen & Juang, 2004
Social interest	Positive correlation (.16)	Gilman 2001
Personal standards	Positive correlation (.45)	Gilman & Ashby, 2003
Hope	Positive correlation (.67)	Gilman & Huebner 2006
Low motivation	Negative correlation (.35)	Sankov, 2013
Emotional intelligence	Positive correlation (.26)	Salami, 2011
Cognitive inefficiency	Negative correlation (.29)	Sankov, 2013

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Physical health and SWB

SWB has also been explored in the context of physical health, physical appearance and engagement in physical activity (refer to Table 5). Numerous studies provided evidence for an association between SWB and general health (Bradshaw, Keung, Rees, & Goswami, 2011), exercise (Valois, Zullig, Huebner, & Drane, 2004b), healthy diet (Due, Holstein, Ito, & Groth, 1991), and positive healthy behaviours (Holstein, Ito, & Due, 1990). Negative health outcomes and symptoms of compromised health status (e.g., repeated migraines and headaches) have been associated with lower SWB (Zullig et al., 2001). In a sample of French adolescents, weight and physical appearance were associated with appraisal of well-being (Ottova, Erhart, Rajmil, Dettenborn-Betz, & Ravens-Sieberer, 2012).

Engagement in physical and extracurricular activities was found to be associated with high social interest and high levels of life satisfaction among adolescent populations (Gilman, 2001). In addition, the participation in exercise including both solo and team sports, was negatively correlated with reports of anxiety, depression, physical symptoms and problematic behaviours (Vilhjalmsson & Thorlindsson, 1992). Across several studies (e.g. Holstein et al., 1990; Rachele, Cuddihy, Washington, & Mcphail, 2014: Valois et al., 2004), physical exercise was linked to higher life satisfaction.

In contrast, an increased prevalence of self-perceived poor health was associated with lower levels of life satisfaction in adolescents. In addition, adolescents who experienced poor physical health reported reduced SWB across all domain of life satisfaction (Langeveld et al., 1996). The decline in life satisfaction associated with poor physical health was strongly correlated with the reported days of poor health; the longer adolescents experienced physical symptoms, the more substantial impact it had on their level of life satisfaction (Zullig et al., 2005a). Reports of poor health were also identified as a factor limiting physical activity for adolescents (Zullig et al., 2005a). In light of the evidence presented demonstrating the

importance of health and physical activity with adolescent SWB, this research incorporated indicators of adolescent levels of health and physical activity as part of the instrument measuring SWB.

Table 5

Physical health and activity and life satisfaction

Constructs	Findings	Study
Migraines & Headache	Negative correlations	Langeveld, Koot, Loonen, Hazebroek-Kampschreur, & Passchier, 1996; Langeveld, Koot & Passchier, 1997; Langeveld, Koot & Passchier, 1999
General Health & self-rated health	Positive correlations	Bradshaw, Keung, Rees, & Goswami, 2011; Shek, 1998c; Zullig, Valois, Huebner & Drane, 2005a
Exercise	Positive correlations	Gilman, Meyer & Perez, 2004b; Valois, Zullig, Huebner & Drane, 2004b, Holstein, Ito & Due, 1990; Larson, 2000; Vilhjalmsson & Thorlindsson, 1992; Piko & Keresztes, 2006; Rachele, Cuddihy, Washington, & Mcphail, 2014
Physical appearance	Positive correlations	Neto, 1993; Leung & Zhang, 2000; Ottava, Erhart, Rajmil, Dettenborn-Betz, & Ravens, 2012
Somatisation	Significant differences between individuals scoring high on life satisfaction and individuals scoring low on life satisfaction (Effect size: .44)	Suldo & Heubner, 2006
Substance use (e.g. cigarettes, marijuana, cocaine and alcohol)	Negative correlations	Newcomb, Bentler & Collins, 1986; Raphael, Rukholm, Brown, Hilt-Bailey & Donato, 1996; Zullig et al., 2001; Shek, 1998c
Healthy diet	Positive correlations	Due, Holstein, Ito & Groth, 1991; Utter, Denny, Lucassen, & Dyson, 2016
Weight control behaviours	Negative correlations	Yeats, Martin, Petrie, & Greenleaf, 2016

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Education, Occupation and SWB

SWB has been associated with academic and professional success (Antaramian, Huebner, Hill, & Valois, 2010; Creed, Muller, & Patton, 2003; Heffner & Antaramian, 2016; Leung & Zhang, 2000; Marques, Lopez, Fontaine, Coimbra, & Mitchell, 2015; Suldo & Shaffer, 2008). Academic abilities have been found to lead to a sense of self-efficacy and correlated positively with SWB (Suldo & Heubner, 2006). An Australian longitudinal study explored SWB in adolescents who left school prematurely in years 10 and 11. The study reported that individuals who were unemployed experienced a decrease in life satisfaction, lower perceived competence and were at increased risk of developing depression when compared with individuals who were employed (Feather & O'Brien, 1986). Johoda (1982) suggested that being unemployed restricted the experience of financial reward and compromised living standard due to financial strains. Additionally, not attaining employment deprived individuals from fulfilling important roles of their lives (Jahoda, 1982), which might have led to a reduced sense of achievement and self-efficacy. Similar results were found for students who completed high school but who did not make a successful transition into full-time work or study (Creed et al., 2003). Using an Australian adolescent sample, Creed et al. (2003) investigated life satisfaction, self-esteem, psychological distress, career decision-making and self-efficacy during the last year of high school and nine months after completion. Full-time employment was the most influential predictor of life satisfaction, higher self-esteem, high career decision-making self-efficacy, and low psychological distress when compared with part-time work or full-time study (Creed et al., 2003). Findings indicated unemployed participants, including school graduates who had remained unemployed after school, experienced decreased SWB. Creed and colleagues suggested that the financial stability that accompanies full-time employment might partially explain this relationship. Jahoda (1981) had previously explored the relationship between SWB and

employment and provided two possible explanations for the relationship between full-time employment and increased SWB. Firstly, as mentioned, fulltime employment increased financial stability, which Jahoda (1981) referred to as *manifest benefit*. Secondly, holding a full-time position was associated with *latent benefit,* which allowed the individual to meet personal psychological needs. In this way full-time workers could benefit from financial and psychological rewards. Table 6 presents some of the literature investigating the relationship between education, occupation and SWB.

Full-time study may provide similar psychological benefits to full-time employment. Students who reported higher levels of SWB were found to be more engaged in classroom activities, to have a greater sense of school belonging, and to achieve higher GPA scores (Antaramian, Huebner, Hill, & Valois, 2010; Suldo & Shaffer, 2008; Suldo, Shaunessy, & Hardesty, 2008). In addition, academic self-efficacy shared a moderate to strong correlation with life satisfaction (Suldo, et al., 2008). In comparison with students with low life satisfaction, students with high levels of life satisfaction reported fewer classroom issues related to problematic behaviours, more perceived support from teacher and peers, and were at a lower risk of dropping out (Danielsen, Samdal, Hetland, & Wold, 2009). Satisfaction with school, also referred to as school satisfaction, has been extensively investigated in the academic literature (Arlan & Duru, 2017; Dawes, 2017; Huebner & Gilman, 2002, Oriol, Torres, Miranda, Bilbao, & Ortuzar, 2017; Prati, Cicognani, & Albanesi, 2017; Wentzel, 2010). School satisfaction is defined as a student's subjective cognitive appraisal of school life in regard to internal standards regarding specific school life sub-domains. Similar to SWB, it is measured via cognitive and emotional factors (Huebner & Gilman, 2002). School satisfaction among adolescent students has been found to be a strong predictor of overall well-being, lower psychological issues, better engagement with school material, and academic progress (Oriol et al, 2017; Park, 2004; Prati, Cicognani, & Albanesi, 2017). The

current project intends to measure adolescents' level of school satisfaction as part of their well-being.

Table 6

Education, occupation and SWB

Constructs	Findings	Study
Leave school/unemployed	Negative correlations	Feather & O'Brien, 1986
Fulltime employment after school versus fulltime study & part-time work.	FT employment reported significantly higher life satisfaction than FT students and PT workers	Creed et al., 2003
Academic ability, GPA	Positive correlations	Antaramian, Huebner, Hill, & Valois, 2010; Heffner & Antaramian, 2016; Leung & Zhang, 2000; Marques, Lopez, Fontaine, Coimbra, & Mitchell, 2015 ; Suldo & Shaffer, 2008; Suldo, Shaunessy, & Hardesty, 2008
Academic self-efficacy	Significant differences between individuals scoring high on life satisfaction and individuals scoring low on life satisfaction (Effect Size: .59)	Suldo & Heubner, 2006

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Family, Social support and SWB

Research on family dynamics and SWB has identified several family-related indicators of poor SWB (refer to Table 7). Factors identified as having a negative impact on adolescents' SWB include divorce (Lansford, 2009), not living with parents (Zullig, Valois, Huebner, & Drane, 2005b), lack of parental involvement (Flouri & Buchanan, 2002) and family concern (Leung & Zhang, 2000). In contrast, factors identified as having a positive impact on adolescents' SWB were positive parental relationships (Gilman & Huebner 2006), perceived parental support (Liebkind & Jasinskaja-Lahti, 2000), and perceived family

functioning (Shek, 2002a). Positive relationships with siblings were also found to lead to an increase in SWB, with adolescents qualifying these relationships as *friendship, intimate,* and *trustworthy* (Oliva & Arranz, 2005). Anecdotal reports suggested children without siblings might lack social skills and could be less adjusted than children with siblings. However, a study by Veenhoven and Verkuyten (1989) demonstrated that children without siblings did not differ significantly from children with siblings on measures of life satisfaction and self-esteem, nor did they report lower levels of popularity among peers. These findings contradicted misconceptions about the role of siblings in promoting self-esteem. Social connectedness was also investigated as a potential correlate of life satisfaction. Interpersonal relationships (Gilman & Huebner 2006), social self-efficacy (Suldo & Heubner, 2006), and peer support (Traylor, Williams, Kenney, & Hopson, 2016) were found to be positively associated with SWB. The current research measured adolescent family and social satisfaction as part of well-being to ascertain the influence of social relationships during this period of development.

Table 7

Family, social support and SWB

Constructs	Findings	Study
Divorce	Negative correlations	Amato, 2000; Demo & Acock, 1996; Lansford, 2009
Parental involvement and relationship	Positive correlations	Baumrind, 2013; Flouri & Buchanan, 2002; Greenberg, Siegel, & Leitch, 1983; Wenk, Hardesty, Morgan, & Blair, 1994; Gilman & Huebner 2006; Greenspoon & Saklofske, 1997; Leung & Zhang, 2000
Perceived parental support	Positive correlations	Young, Miller, Norton, & Hill, 1995; Suldo & Heubner, 2004b; Liebkind & Jasinskaja-Lahti, 2000
Family functioning, Family togetherness	Positive correlations	Shek, 1997a-c, 1998b, 2002a; Heaven, Searight, Chastain, & Skitka, 1996; Williams & Anthony, 2015, Lippold, McHale, Davis, Almeida, & King, 2016
Family structure	Living with both parents was associated with higher life satisfaction compared to living with a single parent or parent and a new partner.	Zullig, Valois, Huebner & Drane, 2005b; Helton & Smith, 2014
Sibling relationship	Positive correlation	Oliva & Arranz, 2005
Only child vs siblings	Only children did not significantly differ from children with siblings on life satisfaction.	Veenhoven & Verkuyten, 1989
Interpersonal relations Peer support	Positive correlations	Gilman & Huebner 2006; Traylor, Williams, Kenney, & Hopson, 2016; Williams & Anthony, 2015

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Violence, risky behaviours and SWB

Research on physical violence (Valois, Zullig, Huebner, & Drane, 2001), bullying (Rigby, 2000), and risky sexual behaviour (Callahan, Tolman, & Saunders, 2003) indicated exposure to violence and risky behaviours negatively impact on life satisfaction with the negative effects being long lasting (Rigby & Slee, 1993). Table 8 presents some evidence of the negative relationship between violence, risky behaviours, and SWB. School-aged children who experienced bullying reported lower levels of life satisfaction and were more likely to develop psychological disorders (Espelage, Bosworth, & Simon, 2000). Similarly, adolescents demonstrating aggressive behaviours and engaging in delinquency differed significantly on life satisfaction from adolescents who did not exhibit such characteristics (Suldo & Huebner, 2006). Additionally, physical fighting has been associated with life dissatisfaction for both males and females (Valois et al., 2001).

There are several reasons adolescents might choose to engage in physical violence, including lack of efficient communication skills, poor management of stress, and poor conflict resolution skills (Valois et al., 2001). An environment, either at the family level or the community level, which promotes violence may also foster these negative behaviours in adolescents (Valois et al., 2001). Consequently, adolescents who are not equipped to deal with conflicts and who witness violence in their environment are more likely to exhibit these behaviours. The environment also contributes to adolescents sense of security. Adolescents who reported not feeling safe in their neighbourhood were found to report lower levels of life satisfaction (Valois et al., 2001). Similarly, young people who engaged in risky behaviours such as drink driving or unprotected sex, also reported poorer life satisfaction (Grigsby, Forster, Baezconde-Garbanati, Soto, & Unger, 2014; Katja, Paivi, Marja-Terttu, & Pekka, 2009; Valois et al., 2001).

This research measured adolescent exposure to violence, specifically bullying, as part of their SWB. Dating violence and delinquency were outside the scope of this research.

Table 8

Violence, risky behaviours and SWB

Constructs	Findings	Study
Physical fighting Carrying a weapon to school Feeling unsafe at school	Negative correlations	Valois, Zullig, Huebner & Drane, 2001
Dating violence Forced sex (victim and perpetrator)	Negative correlations	Callahan, Tolman, & Saunders, 2003; Coker, McKeown, Sanderson, Keith. Valois, & Huebner, 2000; Valois, Zullig, Huebner, Kammermann, & Drane, 2002; Bowen & Walker, 2015
Bullying	Negative correlations	Baxter, 2016; Eisenberg, McMorris, Chatterjee, & Gower, 2016; Gobina, Zaborskis, Pudule, Kalnins & Villerusa, 2008; Rigby, 2000; Rigby & Slee, 1993
Aggression Delinquency	Significant differences between individuals high and low on life satisfaction (Effect Size: A .44, D .29)	Suldo & Heubner, 2006
Health-risk behaviours (e.g. smoking, drinking, fighting, unsafe sex)	Negative correlations	Grigsby, Forster, Baezconde-Garbanati, Soto, & Unger, 2014; Katja, Paivi, Marja-Terttu, & Pekka, 2009; Valois, Zullig, Huebner & Drane, 2001

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Culture and SWB

Research (Table 9) showed that for minority populations, perceived discrimination is associated with lower well-being (e.g. Berry & Sabatier, 2010; Virta, Sam, & Westin, 2004). Adolescents failing to integrate in France experienced heightened levels of discrimination and other negative outcomes as compared with adolescents who felt integrated (Berry &

Sabatier, 2010). For the children of immigrants, discrepancies between parent and children values had a negative effect on the children's SWB (Phinney & Ong, 2002). Children stated they alternated between a "home self", which more closely coincided with cultural norms and meeting parents' expectations and a "school self", which was a more precise reflection of the immigrated country (Phinney & Devich, 1997). Positive cultural values were defined as the perception within the culture of ethnic identity. Adherence to positive cultural values correlated with life satisfaction. This finding was found cross-culturally in both Chinese and African contexts (Constantine, Alleyne, Wallace, & Franklin-Jackson, 2006; Shek 2004). It would appear that when culture is investigated in relation to adolescent SWB, the focus of the research tends to be on acculturation and/or discrimination of the minority group. The current study investigated the influence of the dominant culture of each country on the whole sample. This is not to say that the samples were homogenous in terms of ethnicities and it should be noted that this possibility was not investigated as part of the study.

Table 9

Culture and life satisfaction

Constructs	Findings	Study
Perceived discrimination	Negative correlations	Berry & Sabatier, 2010; Liebkind & Jasinskaja-Lahti, 2000; Virta, Sam, & Westin, 2004
Adherence to Afrocentric/Chinese values	Positive correlations	Constantine, Alleyne, Wallace, & Franklin-Jackson, 2006; Shek 2004, 2005a
Acculturation	Negative correlation	Berry & Sabatier, 2010; Languerand, Seeromanie, & Maynard, 2000

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The implications of the findings from the literature review

The literature review identified several factors associated with increased SWB including self-efficacy, extraversion, general health, academic abilities, positive relationship in and outside of the home, and positive regards towards one's racial identity. In contrast, neuroticism, social anxiety, somatisation, unemployment, family dysfunction, loneliness, aggression, and perceived discrimination have all been associated with lower levels of SWB. Past literature demonstrated the complexity of SWB and provided an insight into the factors that influence SWB in adolescent populations. However, given many of the studies were conducted during socio-economic-environmental circumstances different from those experienced by the participants' sample, the evidence presented needed to be interpreted with caution.

Members of modern societies of the same age group of the study participants have experienced rapid changes (e.g. social media, technological advances, financial crises, and the rise of terrorism) that are shaping the social landscape and affecting aspects of life experience. It was therefore reasonable to assume that these societal changes had impacted the youth and their development. Accordingly, because contemporary youth face different social and economic challenges than did their parents and grandparents, they may report different indicators of SWB. This means that different stressors may exist, and that different remedies or interventions may be needed. Consequently, research is necessary to explore the factors that influence the SWB of this generation of adolescents. Furthermore, given the inconsistencies in the findings from recent studies on adolescent mental health, there is a need for a more comprehensive understanding of the adolescent model of SWB (Sawyer et al., 2001).

The need to study adolescent well-being

This suggested a study of adolescent SWB is needed to improve current and future health and social outcomes for young individuals and the community (O'Connor et al., 2017). Adolescence appears to be a particularly vulnerable time for the development of psychological issues (Bayer et al., 2018; Gregory et al., 2018; Patton et al., 2014). For example, a 2001 Australian household survey found that 14 percent to 20 percent of children and adolescents were at risk of developing psychological disorders (Sawyer et al., 2001). Similarly, the Australian Bureau of Statistics (ABS) National Survey of Mental Health and Well-being (2007) reported that 14 percent of Australians aged between 16 and 24 had a mental disorder and that this population was more at risk than older adults (75 - 85 years old). More recent data confirmed this trend with 13.9 percent of individuals between the ages of four and 17 being reported as having a mental disorder in the last 12 months (Australian Institute of Health and Welfare- AIHW, 2017). The prevalence rate of 12-month disorder for the young population was 26 percent compared with 5.9 percent for the elderly (ABS, 2007). The most commonly reported disorders among adolescents were anxiety disorder and substance use disorder (ABS, 2007). Additionally, comorbidity between different types of anxiety disorders (social, separation, generalised) was found to be high for a population of 6,310 Australian children and adolescents (Spence, Zubrick, & Lawrence, 2018). The high prevalence of mental illness among adolescents was seen as being of concern and so highlighted the need for urgency in exploring determinants of SWB in this population group.

Substance abuse appears to be closely related to SWB with significant correlations between substance misuse and suicidal ideation and attempts (Litwiller & Brausch, 2013; Reed, Nugent, & Cooper, 2015). This is concerning given suicide is the leading cause of death for adolescents in Australia (AIWH, 2016). According to the ABS (2007), 12 percent of 13 to 17 years old reported having suicidal ideation and 4.2 percent had attempted suicide. In

a systematic review of 128 population-based studies, Evans, Hawton, Rodham, and Deeks (2005) highlighted that 30 percent of 12 to 20 years old experienced thoughts about suicide during their life, 20 percent of which were during the previous year. Furthermore, research conducted by Orygen (2015), the national centre of excellence in youth health in Australia, found that the rate of suicide in the 15 to 24 age brackets had increased over the past ten years. Similar findings were reported by UNICEF France. In their sample of 5,161 adolescents aged, 31.5 percent of adolescents had experienced suicidal ideation at some point in their life and 11 percent of this 31 percent had attempted suicide (UNICEF, 2014). Suicide was the second cause of death for French individuals aged between 15 to 24 years old (Baudelot & Establet, 2016). The UNICEF study also presented data on psychological distress experienced by French children and adolescents aged between six to 18 years old. Forty percent of children and adolescents reported feeling blue and sad, 25 percent went through apathy phases, and 30 percent of them had lost confidence in their life. Substantial evidence was provided to demonstrate the prevalence of psychological distress in young populations highlighting the need for research to inform a comprehensive model of adolescent SWB.

Review of existing measures and limitations.

Prior research has focused on SWB in adult populations but neglected to comprehensively explore the factors that contribute to adolescents' SWB (Proctor et al., 2009; Tian, Zhang, & Huebner, 2015). This literature review revealed that was a lack of reliable instruments that assessed adolescent SWB specifically and this was identified as a major limitation in the field of current adolescent health (Dew & Huebner, 1993; Espstein & McPartland, 1976; Gilligan & Huebner, 2002; Huebner, 1995; Konu & Lintonen 2006; Lewinsohn et al., 1991; Park et al., 2004; Seligson et al., 2003; Snyder & Lopez, 2007). In the absence of a valid and reliable instrument, one common approach to measure adolescent

SWB has been to selectively use items from several questionnaires or to combine two or more questionnaires in order to match the different domains thought to accurately represent SWB (Heffner & Antaramian, 2016; Lewinsohn et al., 1991; Telef & Furlong, 2017). However, the use of multiple scales from a variety of instruments limits the validity of the results due to a lack of normative sampling for the composite scales. Without a normative sample, the interpretability of scores is compromised as comparative scoring references are not available (DeVellis, 2012). Furthermore, the observed scores generated when combining different scales and items may not be a reflection of identical concepts (DeVellis, 2012) and may limit the generalisability of research outcomes.

While approaches to the assessment of adolescent SWB have been unsystematic, there have been some attempts to develop standardised measures of adolescent SWB, and a summary of these is presented in Table 11. The next section explores the strengths and limitations of these measures. The review of the existing measures focuses on instruments measuring life satisfaction and SWB. As previously stated, objective well-being refers to the living conditions of individuals, which are beyond the scope of this research.

Table 10

Summary of existing instruments presenting their strengths and weaknesses.

Scale	Authors & year	Domains	# of items	Psychometrics	Advantage	Criticism
Perceived Life Satisfaction Scale (PLSS)	Adelman et al., 1989	Material/physical well-being Relationships Environment Personal development Recreation/entertainment	19	TRT: 85 Cα: .74 to .80 COV not supported	NA	Low factor reliability Factor structure not supported
Students' Life Satisfaction Scale (SLSS)	Huebner, 1991	Overall LS	7	Cα: .70 to .80. TRT: .76 after 1 week CV: .34 to .58. COV supported.	Easy to administer.	No domain specificity. Reductive.
Multi-dimensional Student Life Satisfaction Scale (MLSS)	Huebner, 1994	Family School Friends Self Living environment	40	Cα:.70 to .90. TRT:.70 and .90. COV supported.	Strong psychometrics. Comprehensive.	Domains out-dated

Scale	Authors & year	Domains	# of items	Psychometrics	Advantage	Criticism
Quality of Life Profile-Adolescent Version (QOLPAV)	Raphael et al., 1996	Being: Physical, psychological, spiritual Belonging: Physical, social, Community Becoming: Practical, Leisure, Growth Overall QOL	54	Cα:.83 to .87 for the 3 domains CV.34 to .53 for the 3 domains CRV supported	The instrument developed based on a focus group of school grade and literature. Final revision was done by expert and adolescents.	Out-dated and not time effective.
Youth Quality Of Life Instrument-Research Version (YQOL-R)	Patrick et al., 2002	Self Relationship Environment General QOL	49	Cα:.77 to 96 TRT: .74 to .85	Test-construction: adolescents generated the content of the items, reviewed by expert and consultation of the literature	Norms were established mostly on adolescents with ADHD and disability

Scale	Authors & year	Domains	# of items	Psychometrics	Advantage	Criticism

Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS)	Seligson et al., 2003	Family School Friends Self Living environment	5	Cα:.68 to .89. CRV .62 and .66. DV .43 and -.27.	Easy to administer.	Reductive Single-item approach Only addresses the cognitive aspects of well-being
Perceived Well-being Index- School Children and Adolescents (PWI-SC)	Cummins & Lau, 2005	Standard of living Personal health Achievement in life Personal relationship Personal safety Feeling part of the community Future security	7	CV with PWI-A CRV supported with life and school satisfaction COV supported	Constructed from the ComQol measure	Lack of affective component
Well-being PERMA Framework	Kern et al., 2015	Positive Emotion Engagement Relationship Accomplishment Depression Anxiety	49	Cα:.68 to .92.	Built on Seligman model PERMA. Item construction in consultation with students and pastoral staff. Inclusion of negative factors of SWB	Normative population recruited from private Anglican male school.

EPOCH	Kern et al., 2016	Engagement Perseverance Optimism Connectedness Happiness	20	TRT:.23 to .71 and Cα:.57 and .94 for the factors. CV, DV & CRV supported	*N* = 4480 Six US-based sample, with one being a juvenile and one hospitalised youth Four Australian samples Very strong normative process	All items positively worded and inclusion of only positive factors.

Note: Cα = Cronbach alpha-Internal consistency, TRT = test-retest stability, CV = Convergent Validity, DV = Divergent Validity, CRV = Criterion Validity, COV = Construct Validity, NA = Non-Applicable.
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Life Satisfaction and SWB Scales: Strengths and Weaknesses

In this section, a review of (i) the Perceived Life Satisfaction Scale, (ii) the Students' Life Satisfaction Scale, (iii) the Multidimensional Student Life Satisfaction Scale, (iv) the Quality of Life Profile-Adolescent Version, (v) the Brief Multidimensional Students' Life Satisfaction Scale, (vi) the Youth Quality of Life Instrument Research version, (vii) the Perceived Well-being Index-School Children and Adolescents, (vii) the well-being PERMA framework, and (viii) the EPOCH measure is presented. The first instrument, the Perceived Life Satisfaction Scale (PLSS; Adelman et al., 1989), was designed to assess five related domains of well-being including relationships and personal development, on item such as "How satisfied do you usually feel when you think about the amount of control you have in your life?". Despite being constructed as a multidimensional instrument, the developers used only a composite score, summing the 19 items to evaluate life satisfaction (Adelman et al., 1989; Dew & Huebner, 1993). In addition, they did not test the construct validity of their measure (Adelman et al., 1989; Dew & Huebner, 1993). Dew and Huebner (1993) investigated the factor structure of the PLSS and found that a four-factor structure was the best fit for the instrument, accounting for 57 percent of the total variance in life satisfaction. Although the internal consistency of each factor was found to be acceptable (>. 76), the fourth factor included only two items. To measure an unobservable phenomenon reliably, Classical Test Theory (CTT; Novick, 1966; Nunnally & Bernstein, 1994) recommends using several items. CTT assumes that a score on an item reflected the true score of a conceptual phenomenon measured, plus error, and error in this model is assumed to be at random. By increasing the number of items, the errors in the measurement would cancel each other out, and therefore the score obtained would be a more reliable representation of the unobservable phenomenon (Carmines & Zeller, 1979; DeVellis, 2012). Additionally, computation of Cronbach's alpha, which is used to measure the internal consistency of a scale, relies on two

characteristics, the covariances between items and the number of items (DeVellis, 2012; Shadish, Cook, & Campbell, 2002; Spearman, 1904). Therefore, increasing the number of items could improve scale reliability (DeVellis, 2012; Spearman, 1904). Nonetheless, when designing a scale, a researcher needs to balance between a shorter scale, which puts less burden on the respondent and a longer scale, which may be more reliable (Carmines & Zeller, 1979; DeVellis, 2012). Further, it is accepted that a factor requires at least three items to be stable (Costello & Osborne, 2005). However, to conduct split-half reliability on a factor, a minimum of four items would be necessary. A split-half analysis consists of randomly dividing a factor or instrument and correlating the two scores obtained on each half (Carmines & Zeller, 1979; DeVellis, 2012). If the correlation is high, it indicates that both parts of the factor measure the same domain (Carmines & Zeller, 1979). This method also permits to test for item parallelism. According to the CTT, items must be strictly parallel, which means that every item is as good a representation of the true score of the underlying variable (Carmines & Zeller, 1979; DeVellis, 2012). In consideration of these criteria, the PLSS therefore presents several limitations.

The second instrument to be reviewed is Students' Life Satisfaction Scale (SLSS; Huebner, 1991) and consists of nine items measuring to general life satisfaction (e.g. "My life is going well" and "My life is better than most kids"). This approach is time and cost effective. However, from a domain coverage perspective, the general statements in the instrument do not adequately capture the complexity of SWB. As previously stated, SWB is a multidimensional construct and to measure it accurately, researchers should aim to tap into these multiple domains (Churchill, 1979; Haynes, Richard, & Kubany, 1995; Noar, 2003; Shadish et al., 2002). Overlooking multidimensional aspects of a construct was found to yield less accurate results (Kluegel, Singleton, & Starnes, 1977). The unidimensional aspect of the SLSS masks important diagnostics of life satisfaction domains.

The third instrument presented is the Multidimensional Student Life Satisfaction Scale (MSLSS; Huebner, 1994) and includes 40 items to cover the domains of family, school, friends, self, and living environment satisfaction. Examples items are such “My friends treat me well” and “I like where I live”. These domains have been shown to relate to life appraisal and to account for significant variance in well-being.

The fourth instrument covered in this section is the Quality of Life Profile-Adolescent Version (QOLPAV; Raphael et al., 1996) and includes 54 items and is organised in three parts: being, belonging and becoming. These three parts are divided into three subscales (refer to table 11). For each of these domains, participants are asked to rate their importance and satisfaction.

Item generation for both the MSLSS and the QOLPAV was based on a literature review in combination with children and teacher focus groups. Using the target population and experts was recommended in the field of test development to maximise domain coverage (Berk, 1990; Beaton, Bombardier, Guillemin, & Bosi Ferraz, 2000; Guillemin, Bombardier, & Beaton, 1993; Haynes et al., 1995). This mixed technique was advised to ensure content validity of the instrument as well as gaining first-hand feedback from the target population (Andres, 2012; Churchill, 1979; DeVellis, 2012; Noar, 2003; Pommier et al., 2002). It is important when designing surveys for a specific population (i.e. children and adolescents), that the level of expression is appropriate and that the items are well understood (DeVellis, 2012; Haynes et al., 1995; Noar, 2003). Additionally, using a teacher focus group adds an expert opinion to the item content (Andres, 2012; DeVellis, 2012; Noar, 2003). The process of refinement was clearly reported in both instruction manuals. Both groups of researchers used several steps in their pilot-testing with adequate sample size (150 +). A greater sample size ensures a better generalisation of results, which is critical when the instrument is to be administered to a large population (DeVellis, 2012; Noar, 2003).

Examining the domain coverage of the MSLSS and the QOLPAV showed these instruments to have arguably the greatest content validity of the instruments reviewed. The domains covered in both instruments appeared to map important aspects of the life of children and adolescents, as documented in the literature. However, both instruments were designed in the mid-1990s, which presented limitations in measuring SWB in contemporaneous youth. As discussed in chapter one, late-modern societies are increasingly other-oriented and this has affected the way youth construct their identity (Coté, 1996; 2002; Furlong & Cartmel, 2007; Luyckx et al., 2008; Schwartz, Coté, & Arnett, 2005). In particular, significant advances in technology (eg., internet, smartphones, social media) have changed how young people interact with the world around them. Arguably, youth have evolved considerably since that time (e.g. internet, mobile phones, apps, media portraying the ideal of beauty to younger and younger target population, terrorism etc.). Consequently, from an Ecological Systems Theory perspective, over time it was suggested the domains influencing youth SWB might have changed to reflect these societal changes. Assessment instruments need to take this into account.

The fifth instrument reviewed is the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS; Seligson, Huebner, & Valois, 2003) and has five items and an equal number of factors including self, family, school, friends, and school environment. This instrument is the abbreviated version of the MSLSS (Huebner, 1994). Although the psychometrics of the instrument are meeting the recommended standards (refer to Table 11), the claim of measuring an entire area of life with a single item can be seen as problematic, as it is highly reductive and does not allow for nuances present in reality (Noar, 2003). The use of single indicators can be effective but usually only in discretely measurable characteristics and even these can be problematic (Nunnally & Bernstein, 1994; Smith, Steen, Spaulding-Givens, & Schwendinger, 2003). For complex multidimensional attributes commonly

recorded in psychological research, it was needed to rely on multiple indicators to adequately cover the construct of interest. For instance, the BMSLSS measures peer relationship satisfaction using the item “How satisfied are you with your friends?” and measures family satisfaction using the item “How satisfied are you with your family?”. However, friendship satisfaction would require multiple indicators (e.g. friendship quality, perceived friendship support, and friendship closeness) to be comprehensively measured. Similarly, for school satisfaction, the literature (Prati, Cicognani, & Albanesi, 2017) suggested that schools could foster a sense of community and a sense of alienation, and that children may have mixed feelings towards school. School is the environment in which they interact with friends, yet they may also experience academic anxiety; as such school satisfaction cannot be conceptualised with a single-item.

Single-item measurements have been criticised for three main reasons (Churchill, 1979; Anderson & Gerbing, 1988; Peter, 1979). Firstly, a single-item presents with unique features and therefore may be a poor reflection of the true score. Secondly, if an item reflects imperfectly on a true score, according to CTT, it increases the amount of error in measurement. Therefore, when a single-item approach is taken, the score is sensitive to error threat. There is a high risk in measuring an entire domain of life with a single item, as the answer could be biased due to the poor design of that single item. Thirdly, if this single-item is measured on a five-point Likert-type scale, the outcome can only be interpreted within a restricted range. In contrast, adopting multi-item indicators allows for items to be summed and therefore the score obtained encompasses a broader variance of a construct, which allows a wider range of gradient to differentiate individuals (Churchill, 1979). Additionally, as stated in CTT, the increased number of items improves reliability and cancels out the error in measurement. Alternatively, when using a single-item indicator, researchers should estimate the error based on previous research (Anderson & Gerbing, 1988). However, a review of the

papers using like-instruments did not detail such a conservative procedure and instead showed researchers had used the indicator at face value, not allowing for error variance.

The sixth instrument described is the Youth Quality of Life Instrument Research version (YQOL-R; Patrick, Edwards, & Topolski, 2002). It has 49 items and covers three domains of life satisfaction, namely self, relationships, and environment. Examples items are such “I feel alone in my life” and “Peers treat me with respect”. The psychometrics of the YQOL-R were developed with the purpose of establishing norms for specific youth populations (Patrick et al., 2002). Therefore, the validity and reliability of this instrument for use with a general youth population are questionable. Accordingly, the YQOL-R is restricted to a sub-sample of adolescents.

The seventh instrument presented is the Perceived Well-being Index-School Children (PWI-SC; Cummins & Lau, 2005) and measures seven domains of well-being: standard of living, personal health, achievement in life, personal relationship, personal safety, feeling part of the community, and future security. From a domain coverage perspective, these indicators were appropriate and were found to account for more than 50 percent of the variance in life satisfaction (Tomyn & Cummins, 2011). However, this instrument adopted a single-item measurement approach and although the domains covered offer a broad overview of life satisfaction, the potential impact of measurement error is significant. Additionally, the PW-SC claimed to measure well-being but the affective component of SWB was not represented as part of the domains and consequently disregarded a component of SWB.

The eighth instrument covered is the well-being PERMA framework (Kern, Waters, Adler, &White, 2015) and the ninth instrument is the EPOCH (Kern, Benson, Steinberg, & Steinberg, 2016). Both have excellent psychometrics and a thorough normative process (Kern et al., 2015; Kern et al. 2016). Both instruments were created using theory and focus groups, which was advised by scale development experts (Berk, 1990; Beaton et al., 2000; DeVellis,

2012; Guillemin et al., 1993; Haynes et al., 1995; Noar, 2003). They were created based on the theoretical PERMA model (Seligman, 2011), which defines flourishing as an indicator of SWB (Kern et al., 2015). The well-being PERMA framework mapped the PERMA model's five pillars: positive emotions ('How often do you feel cheerful?'), engagement ('How often have you felt alert?'), relationships ('I feel that I am loved'), meaning ('I feel that my life has a purpose') and accomplishment ('I am a hard worker') in their conceptualisation of SWB, and added two factors to measure depression ('How often have you felt sad?') and anxiety ('How often have you felt nervous?'). The final solution of the instrument only presented six factors because Relationships and Meaning were merged, highlighting the association between meaning and relationship with others in adolescence (Kern et al., 2015).

The EPOCH measure extended Seligman's work to an adolescent population and measures youth well-being based on five domains: Engagement ('I get completely absorbed in what I am doing'), Perseverance ('I finish what I begin'), Optimism (In uncertain times, I expect the best'), Connectedness ('I have friends that I really care about'), and Happiness ('I am a cheerful person'). The EPOCH was created with rigour and was used in different samples across two countries to create norms. However, this conceptualisation of SWB is defined by personality-like traits rather than specific domains of life, and this presents some limitations. This approach to measuring SWB does not allow for interpretation of the specific areas of life that adolescents may find difficult (Kern et al., 2015), nor does it reflect the range of factors associated with adolescent well-being identified in the literature. The current study relied on the traditional model of SWB and consequently, these two instruments were not used.

Therefore, although the instruments reviewed possessed strengths, none of them to date appeared entirely suitable for this study. Consequently, for a thorough approach to the

current research, a new scale was regarded as necessary. In addition, developing a new scale allowed for cross-cultural equivalence of content validity.

Summary of chapter two

Chapter two offered a historical background to the study of well-being and presented a review of the current literature on adolescent SWB. Personal attributes (e.g. personality traits, academic abilities) and environmental variables (e.g. delinquency, family functioning) were found to be significantly associated with appraisal of well-being by youth. However, research exploring the impact of demographic variables (e.g. age and gender) on adolescent SWB remained inconclusive. Despite the importance of adolescent SWB, there did not appear to be a valid and up-to-date instrument for measuring overall youth well-being. To counter this problem, it was considered necessary to develop a psychometrically sound instrument within this current research to comprehensively measured the domains of adolescent well-being. This was needed to enable a valid investigation of adolescent well-being.

As previously stated, this research investigated adolescent SWB in both Australia and France. Consequently, the development of the instrument needed to be cross-culturally valid. Chapter three details the existing methodology limitations in cross-cultural research and addresses the precautions used in the proposed research to overcome these methodology challenges. This project aimed to address some of the limitations of the current measures of adolescent well-being by designing a measure that achieved domain coverage by including the broad range of factors considered to influence adolescents' well-being. By doing so, this work allowed to compare well-being across France and Australia.

Chapter 3

The studies: Methodological consideration for the subsequent chapters

Chapter one proposed an overview of adolescent physical, cognitive, psychological, and social development theories. The underlying framework of this research is the Ecological System Theory (Bronfenbrenner, 1969), which recognises the influences of both culture and environment on adolescent development. Chapter one also offered an illustration of how developmental milestones differed according to the independent and interdependent pathways. The independent pathway is illustrated by individualistic Western values, where the individuals thrive for differentiation (Markus & Kitayama, 1991). The interdependent pathway is seen in collectivist non-Western environments and stresses the importance of connectedness between individuals (Markus & Kitayama, 1991). Most of the literature compared individualist and collectivist cultures. This approach presented some limitations as it tended to disregard the richness of culture and reduce it to a dichotomy of individualism versus collectivism. There is yet to be a study investigating the influence of culture on adolescent development in similar Western settings. Chapter two addressed the scarcity of adolescent Subjective Well-Being (SWB) research and identified a need for expansion of the literature in this area, as understanding young individuals' mental health is considered one of the most important public health issues (Alridge & McChesney, 2018; Bayer et al., 2018; O'Connor, Sanson, Tombourou, Norrish, & Olsson, 2017). Additionally, chapter two identified the lack of valid instruments to measure adolescent SWB across all relevant domains and identified the need for creating such a scale.

Chapter three provides an overview of the methodology used in this research. It also details the methodological issues prevalent in cross-cultural research. Buil, Chernatony, and Martinez (2012) posited that cross-cultural health research was paramount for scholars and public health practitioners as it shed light on mechanisms that were appropriate to a culture.

However, cross-cultural research presented unique challenges to be considered before investigations were conducted and inferences were drawn (Beaton, Bombardier, Guillemin, & Bosi Ferraz, 2000; Guillemin, Bombardier, & Beaton, 1993). Four main challenges were identified in the meta-analysis conducted by Oyserman, Coon, and Kemmelmeir (2002). Firstly, there appeared to be an issue in the unit of measurement used in the existing cross-cultural studies. Secondly, the meta-analysis showed that there was an issue in the operationalisation of the variables studied, specifically individualism and collectivism. The third limitation was the lack of cross-cultural validation of the instruments utilised in these studies. Finally, caution was suggested in drawing conclusions from these studies relating to the sample used. Chapter three also highlighted how the current dissertation handled these issues where relevant.

The literature review identified a clear need for an adolescent-specific instrument to measure SWB, and this investigation devised such an instrument in a cross-cultural setting. The instrument developed in this research needed to be cross-culturally valid, and to achieve this, a multi-step process was followed (described in the procedure section). Additionally, this investigation was conducted in schools, which presented some challenges that had to be considered in the design of the studies. In addition to the newly created instrument, other existing measures were used in this research. A review of the literature indicated that existing measures of adolescents coping were satisfactory and as such the Adolescent Coping Orientation for Problems (A-COPE; Patterson & McCubbin, 1987) was used. The remaining instruments were used to establish the psychometrics of the new measure of SWB. The use of a test battery[6] posed a concern in relation to the time needed to complete the survey and the cross-cultural validity of these instruments. The following section presents the manner in which this project addressed these challenges, including the sampling frame, sampling

[6] Test battery is a collection of instruments.

considerations, the unit of measurement, operationalisation of variables, cross-cultural validity of the instruments, use of appropriate language, ethical considerations, and the procedure followed.

School as a sampling frame

Investigating SWB in school settings is a useful and practical sampling frame because of the critical role educational settings play for school-aged individuals (Arslan & Duru, 2017). Children and adolescents spend a significant portion of their time in schools making these environments the focal point for youth social interaction (Wentzel, 2010). Through their interaction with peers at school, adolescents develop their personal identity and peer culture, extending their social support network beyond family (or familial) circles. (Dawes, 2017). According to *psychosocial theory*, entry into formal schooling triggers the industry *versus* inferiority crisis (Erikson, 1963). The skills and knowledge acquired at school are likely to be used throughout the course of their lifetime, emphasising the importance of well-adjusted development at school (Park, 2004). An Australian study demonstrated that schools played an important role as positive institutions for children's development, and were socially supportive (Lingard et al., 2001). As expressed by Bronfenbrenner (1969), schools are an entity of the microsystem that has a direct impact on children's and adolescents' development. Schools represented a useful sampling frame and were an important factor to consider for research of SWB in children and adolescents.

Sampling consideration

Over 80 percent of studies reviewed by Oyserman et al. (2002) have used undergraduate students. There were two issues associated with this approach: representativeness and sampling method. In regard to representativeness, students' cultural values may differ from that of the general population. Students often come from higher socio-economic backgrounds and are better educated than the general population (Freeman, 1997;

Hofstede, 1980; Triandis et al, 1990). These advantages could give students access to a broader world view and therefore attenuate the real cultural difference present in the general population. In addition, there was an issue of sampling methods in the limited sample used in prior cross-cultural studies. Researchers have often sampled two groups of students from each country and labelled their study cross-national. In order to adequately conduct a cross-national study, several sites in each country needed to be sampled, otherwise threats to external validity of the results could be considerable. It was important to note that the current study only sampled adolescents as the focus was on adolescent adjustment, however this meant that the potential cultural differences outlined may be restricted to adolescent population.

Seven, out of the 33 schools approached for the research, responded positively to the invitation to participate in this research. These schools were located across two states in Australia and one region in France. Sampling from two states in Australia was considered beneficial for sample representativeness. Due to the time constraints of a Ph.D. program, only one month was allocated to recruit schools in France. Therefore, the French sample was limited to one area, as each school principal wanted to meet with the researcher in person. Nonetheless, all schools presented with similar demographics, and were medium to large size public schools ranging from 500 to 2000 students, across a variety of socio-economical status. The Victorian high-school differed from the rest of the sample as it was a selective entry school that started at the year 9 level.

The researcher was familiar with a co-educational high-school in South-East Queensland, Australia, in which the school staff was interested in understanding and measuring students' SWB. This high-school was used to conduct the pilot study of this research. Opportunity samples were sourced in order to gather first-hand data on domain coverage for the creation of the SWB instrument.

After this first phase, 18 Victorian schools were contacted by email, followed up with a phone call. Only one school responded positively to the proposal of participating in the research. This co-educational high-school was selective entry and was located in a South-Eastern suburb of Melbourne, Australia.

Schools in France were approached using similar means, via email and phone call. Eight schools were contacted, and five schools responded positively, including one primary school, three middle schools, and one high-school. These co-educational schools were all located in the same middle-sized city in the South of France.

France and Australia are multicultural. Consequently, when conducting research on students attending French and Australian schools, it was important to note that a proportion of the participants would be from different ethnical backgrounds. The pilot version of the questionnaire included a question on nationalities and data showed that more than 15 nationalities were represented in the samples from the Queensland high-school. During the cross-validation of the instrument, feedback from the expert review panel noted that in the French context questions regarding ethnicity were considered culturally offensive. Subsequently, there was no report of the ethnical background of the participants. However, the school staff in Victoria reported a high percentage of adolescents from Asia, and the school principals in France reported a high percentage of adolescents from North Africa. In both the French and Australian samples diversity was evident in the student populations. Both locales have a multicultural aspect as a point of similarity as of 2018. Admittedly, the admixture of the culture, or proportion represented of different ethnicities is likely to differ as a function of emigration patterns.

Unit of measurement

A significant amount of the existing research used Hofstede's (1980) four cultural dimensions of power distance, uncertainty avoidance, individualism and masculinity (refer to chapter 1). These cultural dimensions emerged from Hofstede's investigation of 40 nations and are considered as a representative model of cultural values at a country-level. However, previous studies have used these dimensions at an individual-level. Hofstede warned that using nation-level indicators at an individual-level would constitute an ecological fallacy (1980). An ecological fallacy may occur when an association at a population level, or between aggregated variables, differs from the true association at an individual level (Loney & Nagelkerke, 2014; Ostroff, 1993). An illustration of ecological fallacy can be seen in the interpretation of the relationship between eating a rich fibre diet and improved cardiovascular function. Aggregate data shows a clear positive relationship but at the individual level the relationship is weaker. Individual consumption patterns matter, which means that there is often a third variable problem, in that those who consume high fibre diets are usually more broadly health conscious and moderate. It may be the moderation of behaviour and diversity of diet that are the causal factors that influence cardiovascular functions, not specifically the consumption of a rich fibre diet. Idrovo (2011) proposed three criteria to identify ecological fallacy: (1) findings must yield from ecological studies, (2) data is inferred to individuals and (3) there is an inconsistency between individual and population data. Aggregate data may be interpreted to represent a generalised response pattern, which is only true at the aggregate level (statistical population) but which is not representative of any particular group contributing to the data individually. In this way, the work of researchers who have applied Hofstede's four cultural dimensions at an individual level might be susceptible to bias. In this dissertation, Hofstede cultural indicators were not measured, however they provided a context for comparison of these two Western countries.

Operationlisation

A fundamental concern in the development of test instrument relates to the characteristics of the construct to be measured and its relationship to other constructs (Sullivan & Feldman, 1979). Consequently, it is important to clearly define the construct measured in a study. Approximately 60 percent of research reviewed in Oyserman et al.'s (2002) meta-analysis operationalised individualism and collectivism as opposite ends of a continuum. Due to this operationalisation, participants were only assessed on either an individualism or collectivism instrument. However, Oyserman et al. noted that individualism and collectivism were multidimensional orthogonal constructs.

There were also discrepancies noted in the constructs used to measure individualism and collectivism in previous studies. For instance, 83 percent of instruments targeting individualism included items relating to valuing personal independence and more than 30 percent measured personal achievement, self-knowledge, and uniqueness. Participants obtained scores on domains such as *Goals, Private,* and *Unique* (refer to Table 11 for a description and an example item for these domains). In contrast, collectivism was measured on domains such as *Belonging, Harmony* and *Hierarchy* with 85 percent of the instrument including items relating to a sense of duty to the group, and 74 percent targeting relatedness to others. This meant that although participants were evaluated on different domains, the researchers assumed that a low score on one domain would be equivalent to a high score on a different domain. Consequently, a simple interpretation of their findings may well be misleading or incorrect.

Table 11

Domain name, description, and example items used in the measurement of individualism and collectivism (adapted from Oyserman et al., 2002, p. 8).

Domain	**Description**	**Example item**
Goals	Strive towards personal goals, desires and achievement	I take great pride in accomplishing what no one else can accomplish
Private	Having thoughts and actions that are private from others	I like my privacy
Unique	Focus on personal identity, idiosyncratic qualities	I am unique, different from others in many respects
Belonging	Want to belong and enjoy being part of a group	To me, pleasure is spending time with others
Harmony	Concern for group harmony and the members of the group get along	I make an effort to avoid disagreements with my group members
Hierarchy	Focus on status issues and hierarchy	I have respect for the authority figures with whom I interact

This dissertation compared two individualistic cultures, and cultural components *per se* were not being evaluated. In addition, the studies reviewed by Oyserman et al. (2002) assumed similarities among individualistic cultures. The focus of the investigation was on adolescent adjustment, which was operationalised as SWB and coping strategies. In order to measure adolescent's SWB, an instrument was designed. The composition of the factors on which SWB was measured differed across the two settings, reflecting cultural differences (refer to study 3 and 4). Although these differences existed, the operationalisation of these factors was considered equivalent in both settings. Coping was measured on the Adolescent Coping Orientation for Problems (A-COPE; Patterson & McCubbin, 1987), as such the 12 coping strategies included in the instrument were operationalised in a similar manner for the

Australian and the French sample. The current research aimed to highlight cultural differences within these individualistic settings.

Cross-cultural validity of instruments

Often, in cross-cultural research the interest is on culture and the reported differences stemming from the cultural settings. As such, researchers in the field have developed instruments pertaining to cultural aspects, however there were several issues associated with this process. Although this dissertation did not use such instruments, an overview of these issues is presented in the following section. Most instruments reviewed in Oyserman et al.'s (2002) meta-analysis were based on two assumptions, that cultural knowledge is declarative knowledge[7] and that the meaning of an item and its answer is equal in both settings. The literature (Chase, Simon, & Herbert, 1973; DeGroot, 1946; Larkin, McDermott, Simon, & Simon, 1980; Schiffrin & Schneider, 1984) appeared to contradict these two assumptions.

Experiential and conceptual equivalence of items

Questions about individuals' deeply embedded attitudes and beliefs might prove difficult to answer because the level of awareness regarding these cultural values might not be explicit. Expertise literature dating back to the 1940s showed that deeply learned and automatic responses tended to be become non-verbal (DeGroot, 1946). Most research came from experimental cognitive psychology, but the researchers demonstrated that their findings could be applied to universal characteristics (Chase, Simon, & Herbert, 1973; DeGroot, 1946; Larkin, McDermott et al., 1980; Schiffrin & Schneider, 1984). DeGroot (1946) conducted experiments in which he compared grandmasters' and masters' choice of moves in chess. DeGroot asked his participants to verbalise the thought processes they were employing to select their next move. His work demonstrated that as processing became more efficient and

[7] Declarative knowledge refers to the collection of general and specific factual information an individual possesses (Kihlstrom, 1987)

implicit, the declarative representation of the task degraded. This result implied that when using non-verbal competencies, participants were more efficient at a task when they did not have to think and verbalise the processes they were going through. This study served as a baseline for a plethora of research in cognitive psychology regarding attention, problem-solving strategy, perception, and memory (Bilalic, McLeod, & Gobet, 2008). Fiske (2002) claimed the use of self-reports to measure culture as "worse than useless" as he argued that culture was procedural, not declarative knowledge. Individuals living in a culture can be considered experts in their culture; and as such have a procedural representation, which is generally recognised in cognitive psychology as being automatic. Consequently, individuals tend to find it difficult to express their cultural influences declaratively.

The issue attached to the second assumption mentioned above lied with the cross-cultural validity of the instruments. When investigating cross-cultural differences researchers used questionnaires that asked participants to rate broad values. First, there were validity issues with the evaluation of value without explicit framing of context. An illustration of this concern could be seen in an individual who values punctuality highly in a professional setting but who may be more flexible in regard to the personal sphere. When individuals were asked about their endorsement of values, they constructed their personal meaning of the value (Kahnemen & Miller, 1986). Therefore, asking different populations whether they endorsed equality might result in specific groups reflecting on the value from an idiosyncratic focus. Women could interpret this question in terms of gender equality and pay-gaps in the workforce, minority groups could think of a racial focus and discrimination experiences, and individuals from a communist country could infer that the item deals with social equality. These illustrations showed that different groups of individuals tended to emphasise the meaning of a value from a group-centric perspective (Kahnemen & Miller, 1986).

Second, there was an intrinsic problem with the definition of value. According to some (Kluckhohn, 1951; Rokeach, 1973, Williams, 1968), values were defined as desirable standards, or attributes generally preferred. In this case, values were not directly linked to behaviours, and the definition suggested that the preferred standard was the achievement of the value (Peng, Nisbett, & Wong, 1997). For instance, individuals might say that they valued exercising and keeping in good health. However, they might not necessarily engage in the associated behaviours. This discrepancy between espoused behaviour, what was said, and enacted behaviours, what was done, was documented in the literature (Schuh & Miller, 2006). In contrast, according to the social adaptation theory, values were a class of social cognition, which motivated individuals to adapt to their environment (Kahle, 1983; Piner & Kahe, 1984). This definition proposed a more direct link between values and associated behaviours that have been described as a path value-attitudes-behaviours hierarchy (Homer & Kahle, 1988). An illustration of this conceptualisation of values could be seen in a woman who values greatly the respect for elders and who dedicates her Saturdays to visiting the elderly in her neighbourhood (espoused and enacted values). These two approaches of values and their relationships to behaviours questioned whether identifying values in individuals would translate into their functioning.

Third, before individuals evaluated their values, they used social comparison (Festinger, 1954). In the prior example of the woman visiting the elderly on Saturdays, if that woman was from an individualist culture, she might rate herself highly on respect for elders in comparison to people around her. In contrast, a woman from a collectivist community may assess her respect for elders in comparison to established norms in her culture. Consequently, the evaluations of values were not necessarily solely based on individuals' assessments of personal beliefs, but these assessments might be a reflection of an adjustment to the other community members. Because of this, aggregating individual scores to obtain a total score for

a community or a country was bound to be biased by these inter-individual social comparisons. This bias could threaten the validity of the results in this research. For example, the practice of sports is more common in Australia than in France. Therefore, an adolescent in Australia participating in four hours of sport per week may report a lower frequency when asked about his or her practice of sports than a French adolescent who participates for two hours per week due to social comparisons. The answers they give would be relative to their peers.

Fourth, individuals were more likely to value highly what they were deprived of (Peng et al., 1997). Table 12 presents data from France and Australia for the year 2015 on four indicators of crime statistics. Based on the data presented in table 2, Australia could be considered a safer place, with fewer crimes, and Australians might report valuing safety less than their French counterparts might. In this instance, the measurement of value could be more representative of what individuals feel they are lacking rather than what they think they live by and have in their environment.

Table 12

Rate per 100,000 population of four crime indicators in Australia and France

		Country	
Indicator	**Definition**	**Australia**	**France**
Homicide	Homicide is defined as unlawful death purposefully inflicted on a person by another person	1	1.6
Car theft	Motor Vehicle Theft means the removal of a motor vehicle without the consent of the owner of the vehicle. 'Motor Vehicles' includes all land vehicles with an engine that runs on the road, including cars, motorcycles, buses, lorries, construction and agricultural vehicles. (UN-CTS M4.4)	194.6	261.9
Assault	Assault means a physical attack against the body of another person resulting in serious bodily injury, excluding indecent/sexual assault, threats and slapping/punching. 'Assault' leading to death should also be excluded. (UN-CTS M3.2)	279.9	379.1
Robbery	Robbery means the theft of property from a person; overcoming resistance by force or threat of force. Where possible, the category “Robbery” should include muggings (bag-snatching) and theft with violence - but should exclude pick-pocketing and extortion. (UN-CTS M3.5	37.4	162.9

Note. The data presented are the rate per 100,000 population. The definitions of car theft, assault and robbery were provided by United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems. The data were obtained on Knoema.com.

Although, two different cultural groups were measured on their SWB and coping strategies, the current investigation did not directly measure culture. Therefore, the aforementioned issues were not directly of concern. Nonetheless, using the same instruments in two cultural contexts necessitated a cross-cultural adaptation, which meant that the instruments needed to be suitable for both languages and adapted to both cultures (Beaton,

Bombardier, Guillemin, & Ferraz, 2000).

An important vehicle of culture is language (Hofstede, 1980); it is the primary means through which individuals learn about the world (Fausey, Long, Inamori, & Boroditsky, 2010). Language is not inherited but a learned skill and as such it is culturally bound (Hofstede, 1980). The Sapir-Whorf hypothesis posited that language determined what one could think and communicate and that, unless linguistic backgrounds were similar, understanding of concepts could never be fully ensured (Whorf, 1940). Current proponents of the Sapir-Whorf theory expressed the idea in terms of "strong influences", rather than linguistic determinism (Kousta, Vinson, & Vigliocco, 2008). This position implied that cultural differences would be embedded in the language used but would not hinder communication. In order to reduce the potential for cultural misinterpretation, it was important to ensure the equivalence of the language.

Addressing language equivalence was critical to avoid linguistic traps (Beaton et al., 2000). For instance, the first version of the questionnaire contained the word *stranger* in the expression *feeling like a stranger*. However, the French translation did not refer to the same conceptual idea as it tapped into the concept of foreigners. Hofstede advised that the best remedy for these linguistic traps was for bilingual individuals to translate and back translate the instrument (1980). This procedure ensured the preservation of the meaning of the items in both languages. Sperber (2004) recommended using proficient bilingual individuals because this approach guaranteed that participants possessed a level of expertise in both languages and an understanding of both cultures. Additionally, Hofstede recommended the instrument contain a certain amount of redundancy to allow the domains of the questionnaire to be approached from different angles. Furthermore, Bristlin, Lonner, and Thorndike (1973) devised a number of rules to increase the clarity of cross-cultural instruments including, developing short and simple sentences, using an active voice and nouns, rather than pronouns,

and avoiding colloquialisms and vague terms. Beaton et al. (2000) suggested that the cross-cultural adaptation of an instrument needed to use a back-translation process, as well as the feedback of experts to ensure cultural validity. This research adopted these rules.

Following the recommendations of Benson and Clark (1982) on test development, the research initially used open-ended questionnaires during the pilot study process to elicit the domains necessary to measure adolescent well-being. This technique allowed for the target population to inform first-hand domain coverage of the instrument. A panel of well-being experts from the pilot-study school reviewed the items in order to validate domain coverage terminology in inclusiveness of items (Berk, 1990; Benson & Clark, 1982; Grant & Devis, 1997; Radhakrishna, 2007). This phase of the study was conducted in Australia. Additionally, further items were generated in France by a panel of educational experts. This step allowed for a French perspective on the domains covered and to identify issues related to language (Beaton et al., 2000).

Using Brislin's (1970) model of back translation, the new version of the instrument was translated three times, first back into English, second into French, and one last time into English. This process allowed to compare the two French versions and the two English versions, which guaranteed a cross-cultural equivalence. The instrument was then piloted by a group of young school children. The steps followed by the research guaranteed for the newly developed instrument to be valid in both countries.

Apart from the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) and the Adolescent Coping Orientation for Problems (A-COPE; Patterson & McCubbin, 1987) the remainder of the test battery instruments had not previously been used on French-speaking samples. Although, a review of the literature did not point towards a previous use of the Kutcher Adolescent Depression Scale (KADS; LeBlanc, Brooks, Almudevar, & Kutcher,

2002), a French version of the scale was available online. Consequently, only the Brief Multidimensional Students Life Satisfaction Scale - Peabody Treatment Progress Battery version (BMSLSS-PTPB, Bickman et al., 2010) and the Personnel Well-Being Index - School Children (PWI-SC; Cumming & Lau, 2005) had to be translated into French and then back into English to ensure that the items would return to their original form. The French panel of experts reviewed the instruments to ensure usability in a French sample. Nonetheless, to ensure the usability of the A-COPE in a French and Australian sample, a multi-sample analysis[8] was conducted.

Response equivalence

The meaning of an answer such as "very frequent" might vary in different contexts depending on the range of the scale (Ji, Scharz, & Nibett, 2000). A study showed that the USA relied on the frame of the frequency of responses available to qualify their behaviours (e.g. going to the library or telling a lie) whereas Chinese participants relied on their own representational memory and the norms within their culture into practising that behaviour. As such, Westerners appeared to be more influenced by the different increments offered by the Likert-type scale, and this meant that potentially, the fact that the scale ranged from 1 to 5 or 1 to 10 could influence the responses of the participants. Easterners did not show the same pattern. Furthermore, certain cultures were more inclined to select extreme points of the Likert-type response scale while other cultures had a tendency to show restraint in their answers (Hui & Triandis, 1989). For instance, in Arabic cultures, when something is true, one must emphasise that truth, and therefore select an extreme end of the scale. In contrast, Asian cultures tend to emphasise the need to show controlled emotions and modesty, and as such middle points are more frequently selected (Hui & Triandis, 1989). In the current research,

[8] Multi-sample analysis is a method for evaluation of the comparative fit for an instrument in two different samples.

both samples comprise Westerners and there was to date no data suggesting differences in the use of Likert-type response scale. There has not been any documentation relating to the differing use of Likert-type response scales between Australian and French populations. Consequently, the meaning of an answer was assumed to be similar in both contexts. Nonetheless, the use of Likert-type scales raises some issues. The original Likert scale was developed by Likert and what is technically defined as a Likert scale proper is a combination of several Likert-type items for which there are five response options ranging from *strongly approve* to *strongly disapprove* (1932). Likert never intended for a single item measured on a Likert-type response format to be called a Likert scale (Carifio & Perla, 2008; Clason & Dormoody, 1994; Likert 1932). To design a (summated) Likert scale, Likert recommended that a Likert-type item must be the expression of a desired behaviour rather than a statement of fact, be formulated in simple language, and not involve double negative or double-barrelled[9] statements (1932).

In order to fulfil the first condition, Likert (1932) advised using the word *should* so the measurement of attitude is possible. To demonstrate this point, consider this statement *Donald Trump won the presidential election.* Whether or not individuals supported the candidate the answer would converge towards an agreement. In contrast, if the item was written such as, *Donald Trump should have won the presidential election,* a measurement of attitudes towards the candidate is possible. The second condition can be met by using simple language to avoid confusion. For example, *I do not feel bad* should be simplified to *I feel good.* Also, an item that contains double-barrelled statements should be broken into two distinct statements, *Same-sex couples should be able to marry and adopt children* should be separated into *Same-sex couples should be able to marry* and *Same-sex couples should be able to adopt children.*

[9] Double-barrelled refers to an item pertaining to two ideas (Babbie, 2010)

A Likert scale comprises ordinal answer choices, also referred to as "weak measurements" in the literature, due to some limitations (Baker, Hardyk, & Petrinovich, 1966; Knapp, 1990; Stevens, 1951). Ordinal measurements involve a ranking order between response choices but the distance in between options cannot be quantified (Hansen, 2003; Jamieson, 2004; Pett, 2015). Nevertheless, an assumption made about the Likert-type response scale is that response options are equally balanced and spaced around a midpoint option (Ubersax, 2006). Several authors suggested that assuming the distance between *strongly approve* and *approve* was the same as between *strongly disapprove* and *disapprove* was problematic (Bishop & Herron, 2015; Clegg, 1982; Cohen, Manion, & Morrison, 2002). Treating Likert-type responses as interval scales[10] created issues with the way the data was analysed, and wrong statistical inferences could be drawn from the data (Clegg, 1982; Cohen et al., 2002; Jamieson, 2004; O'Brian, 1979; Siegal, 1956; Stevens, 1955, 1996; Thomas, 1982). Stevens (1951) stated that the lack of numerical units in ordinal scales should prevent researchers from adding, subtracting, multiplying or dividing scores obtained on such scales. Median and mode should be used to describe ordinal data, and non-parametric tests[11] are required (Clegg, 1982; Cohen et al., 2002; Jamieson, 2004; Pett, 1997).

Despite long-standing methodological advice not to use parametric tests on non-normal data including ordinal Likert-type data (Bishop & Herron, 2015; Carifio & Perla, 2008; Knapp, 1990), researchers have analysed Likert-type data using parametric tests such as regression, *t* and *F* tests (Blaikie, 2009; Jamieson, 2004; Knapp, 1990). Normally distributed data was advocated as the necessary condition to use parametric tests on ordinal data to produce meaningful results (Borgatta & Bohrnstedt, 1980; Carifio & Perla, 2008; Derrick &

[10] Interval scales have equal numerical increments of measurement that corresponds to equal increments of the measured variable.

[11] Non-parametric tests deal with non-normally distributed data, ordinal and nominal data. Examples of non-parametric tests are chi-squares, Spearman's Rho, Wilcoxon signed ranked test.

White, 2017; Gaito, 1980). Baker et al. (1966) advised that to use parametric tests on weak measurements was not problematic if two conditions were met; i) sample sizes need to be equal and ii) a two-tailed test should be used. Previous work (Baker et al., 1966; Derrick & White, 2017; Labovitz, 1967) supported these views with empirical testing showing little difference between the analysis of data using parametric or non-parametric tests. Carifio and Perla (2008) argued that the debate on the use of Likert scales has ended as there is sufficient evidence that although Likert-type items were ordinal, the summation of several items yielded a measurement that could be considered interval. Further, they claim that the use of *F* statistics primarily and other parametric tests produced unbiased results, (Carifio & Perla, 2008).

In light of these opposing views, this study acknowledged that strictly speaking, Likert scales use ordinal measurement, and the score obtained on the summated scale could be dealt with as interval because it was representative of a score on a latent variable. For instance, a score such as 16.38 on a life satisfaction scale can be meaningfully interpreted as a moderately high satisfaction interpreted as interval data. Statistical analyses are not an end in themselves, they are tools that allow researchers to draw inferences from their sample (Bishop & Heron, 2015). Parametric tests offer more sophisticated and nuanced statistics (Carifio & Perla, 2008; Derrick & White, 2017), which are needed in this research. The current study used data that was normally distributed from equal group sizes on Likert (summated) scales. Consequently, parametric tests were used to analyse the data collected.

Typically, the five-option choice is the format for recording responses on a Likert scale; however, past research has also frequently used seven, nine and eleven-point formats (Clason & Dormoody, 1994; Derrick & White, 2017; Loken et al., 1987: Malhotra & Peterson, 2006; Ubersax, 2006). The seminal work of Symonds (1924) suggested that a seven points format was ideal as it maximised scale sensitivity and reliability. Some (Alwin &

Krosnick, 1991; Guilford, 1954; Jahoda, Deutsc & Cook, 1951; Komorita & Graham, 1965) argued that increasing the number of response choices also increased the reliability of the scale. Conversely, Jacoby and Matell (1971) found that a three-point Likert-type response scale was sufficient. Komorita (1963) found no differences in internal consistency between a two and six-point format. Bendig (1953) maintained that there were no differences in reliability between a three, five, seven and nine-point response format; but an 11-point response format decreased the reliability of the scale. There were also suggestions that the number of response choices did not affect the reliability and sensitivity of a scale (Matell & Jacoby, 1971). More recent work has advised that five and six-point Likert-type responses were found to be more sensitive and reliable (Contractor & Fox, 2011; Krosnick & Fabrigar, 1997). Five and six-point Likert-type responses were deemed the most efficient as they received the least amount of non-responses, and decreased respondents' fatigue (Contractor & Fox, 2011).

There was also a debate as to whether the inclusion of a midpoint would influence the reliability of the scale (Guy & Norvell, 1977; Tsang, 2012). Findings were polarised. Courtenay and Weidemann (1985) suggested that the use of the midpoint increased the reliability of their results. Similarly, a study in educational psychology showed that the results obtained, using a midpoint from a group of elementary students, were significantly more reliable than the results obtained from the group who did not use a midpoint. Opponents (Alwin & Krosnick, 1991; Krosnick, Narayan, & Smith, 1996; Master, 1974; Weems & Onwuegbuzie, 2001) to the midpoint posited that odd-numbered Likert-type response formats lowered the reliability of the results. In addition, the inclusion of a midpoint tended to create a culmination of the responses towards the midpoint (Alreck & Settle, 1985; Krosnick et al., 1996). This tendency to select the midpoint, when available, ranged between 20 and 25 percent (Weems & Onwuegbuzie, 2001). This trend was suspected by some (Dawes, 2001;

Garland, 1991; Gilljam & Granberg, 1993) to be the result of participants being reticent to express negative opinions. That is, respondents had opinions towards the problem but refrained from expressing when they were negative (Gilljam & Granberg, 1993). Garland (1991) showed that eliminating the midpoint reduced this socially desirable influence in the responses.

Additionally, the labelling of the midpoint was also of concern. A study by Armstrong (1987) demonstrated that the wording of the neutral option was not affecting the results, but his investigation only focused on the choice between "neutral" and "undecided". However, a study on adolescents showed that the midpoint could hold different meanings "neither agree or disagree", "don't know", "no opinion", which created issues in the interpretation of the data (Raaijmakers, Hoof, Hart, Verbogt, & Wollebergh, 2000). Further, in studies for which the midpoint is left unlabelled, this option becomes a "dumping ground" that may hold a completely different meaning than the one intended by the researcher (Kulas, Stachowski, Haynes, 2008). In consideration of these findings, the current study opted for a six-point format (forced-choice) in the final version of the created instrument.

Another criticism of the format of the Likert response is the idea that two groups could display the same mean on an item and yet have answered the question in a very different way (Refer to table 14; Clason & Dormody, 1994). The example displayed in Table 13 demonstrates the limitation of the format of the Likert-type response when information about the variance is not reported (Bishop & Herron, 2015). Clason and Dormody (1994) advised that researchers should consider the discrete nature of the data for a single Likert-type item and present the data as counts or percentages. Consequently, when performing an analysis at the item level, frequency distributions of the item were inspected.

Table 13

Distribution of responses to a Likert-type item for two distinct groups

Likert-type item	Strongly approve	Approve	Neither approve or disapprove	Disapprove	Strongly disapprove
Group A (*N* = 50)	10	10	10	10	10
Group B (*N* = 50)	25	0	0	0	25

Created by the author, Camille Rault, 2020.

Social desirability threat with the use of self-report

Self-report questionnaires are widely used in social science research, with a large body of evidence supporting their implementation (Gilman & Huebner, 2003). Importantly, self-reports have been a well-established as a method with proven validity in the field of research regarding children and adolescent well-being (Bender, 1996; Gilman & Huebner, 2000). However, self-report instruments may increase the risk of social desirability bias (van de Mortel, 2008). Social desirability responding is an impression management behaviour through which respondents try to portray characteristics that appeal to their peers (van de Mortel, 2008; Diener, 1994). Participants may falsify responses in an attempt to conform to social norms. A common strategy to compensate for positive impression management in self-report tools is the inclusion of a self-report measure such as Marlowe-Crowne social desirability scale (1960) or the inclusion of impression management detection questions.

However, there is a debate among academics pertaining to social desirability responding in self-report instruments and the impact it may have on the psychometric properties of measures (Smeding, Dompnier, & Darnon, 2017). Furnham (1986) proposed an alternative view of participant impression management. According to this view, rather than being a potential confounder of design, socially desirable responses may be the reflection of a

facet of personality. A study by McCrae (1986) supported this idea. The investigation of the associations between neuroticism and measure of SWB, before and after controlling for social desirability, showed that removing the effect of social desirability decreased the validity of the measures of SWB. Therefore, eliminating the impression management effect was found to overlook the contribution of aspects of a personality from participants' responses, which are indicative of SWB, without increasing the validity of the scale (Diener, 1994).

Similar conclusions were drawn by other studies that attempted to control for social desirability when measuring SWB (Diener, Sandvik, Pavot, & Gallagher, 1991; Kozma & stones, 1988). However, the results yielded weak associations between self-report and non-self-report measures of SWB. Using two samples of undergraduate students, Diener, Emmons, Larsen, and Griffin (1985) reported little evidence of social desirability bias in the measure of SWB. These authors showed that the Satisfaction With Life Scale (SWLS; Diener et al., 1985) shared a correlation of .02 with the Marlowe-Crown scale of social desirability. Additionally, Huebner (1991a) found no correlation between the measure of Students' Life Satisfaction Scale (SLSS; Huebner, 1991a) and social desirability (r = .05), with two samples of children aged between seven and 14. In consideration of the evidence, this study did not include a measure of social desirability.

Another approach to controlling for socially desirable responding is to triangulate the self-report data obtained from a participant with that from another data source. Although a combination of adolescent self-report measures and parent or teacher reports would be most desirable, this approach would require extensive resources and time, which was not deemed feasible for this research. In addition, the evaluation of life satisfaction, the cognitive component of SWB, involves psychological processes that are intrinsic to the individual (Huebner, 1991b). Consequently, self-report measures offer necessary insight into the

individual's appraisal of their internal standards, and therefore a self-report measure was adopted for data collection for this research.

Age-appropriate language

Apart from the sampling representativeness, there might be additional concerns in regard to the use of appropriate language in the questionnaire. Stemming from Piaget's theory of cognitive development (1959), it has been argued that instruments targeting young populations should use simple language adapted to each developmental stage. This research aimed to measure SWB and coping for children and adolescents aged between 10 and 19. Applying the Piagetian developmental theory would result in generating two forms of the instruments used to address the concrete operation stage and the formal operation stage. However, as previously stated, the strict application of this theory has proven to be restrictive and to overestimate maturation factors (Artman & Cahan, 1993; Siegler, 1981). Schooling was found to have a stronger effect on children's cognitive development than maturation alone (Artman & Cahan, 1993). Furthermore, Dasen (1972) noted that cultural, social, and environmental factors played a role in cognitive development. The evidence presented suggested that using simple language throughout would be sufficient to ensure usability of the instrument. In order to guarantee that items would be understood correctly by the participants, the questionnaire was piloted by the youngest cohort of children with the instruction to flag any difficulties in the item wording. This sample of children came from a school located in a very low SES area, where French was unlikely to be the only spoken language at home. Low SES and home bilingualism have been documented to have an adverse effect on young children's language skills (Hakuta, 1986; Hoff, 2013; Oller & Eilers, 2002). Although this idea has been extensively debated, bilingual children' understanding of language was reported to be as good if not better than monolingual children (Bialystok, 1988; Bialystok, Majumder, & Martin, 2002). An important variable would be the parents' level of bilingualism and their

communication with the children. This particular sample came from very low SES where parents and children appeared to have restricted vocabulary skills in French[12]. Using this sample to pilot the instrument ensure a conservative estimate of vocabulary range to be assessed. In regard to the other instruments, the literature indicated previous use with similar age samples.

Ethical consideration

This research was conducted in accordance with the Australian National Health and Medical Research Council (NHMRC) national statement on the ethical conduct of research. In addition, this study was conducted in accordance with section 4.8 (People in other countries) of the National Statement on Ethical Conduct in Human Research (2007). Prior to conducting the research, the project was reviewed and approved by the Bond University Higher Research Ethics Committee (BUHREC). The obtained ethics approval from BUHREC numbered 15062 covered studies 1 and 2, while the BUHREC application numbered 15917 covered the subsequent studies. Holding ethics approval from the university was sufficient to survey one school in Queensland. This research aimed to recruit several schools from Victoria, therefore ethics approval was obtained from the Victorian Department of Education. The Inspection Académique du Var (French region in the South of France) consented to their schools being surveyed, subject to approval of the principals.

Potential participants were informed in advance of the purpose of the research and that they were free to participate. Participants were also advised to meet with the school counsellor or contact a support line in the event of experiencing distress after completing the survey.

[12] This information was discussed during the session with the educational experts of that school.

Procedure

The Queensland high-school provided two opportunity samples for the initial pilot study. These two samples assisted with item generation and provided feedback on the readability of the items. Once the instrument was designed, it was completed by students from the Queensland high-school during their standard class schedule whilst in the computer room. It was at the discretion of the staff members to choose the period during which students were to complete the instrument. Participants were provided with a link to the online survey package[13] and they were instructed to complete the self-administered task during a single period. This was done in a standard class setting, under the supervision of teachers[14]. The surveys were completed over a one-week period. The Queensland high-school was only involved in the beginning of the research, and as such, only the newly developed instrument was available for completion by the participants.

The test-battery included six questionnaires: (i) the Comprehensive Adolescent Measure of Well-Being (CAMWB), (ii) the Adolescent Coping Orientation for Problems (A-COPE; Patterson & McCubbin, 1987), (iii) the Peabody Treatment Progress Battery version (BMSLSS-PTPB, Bickman et al., 2010), (iv) the Personnel Well-Being Index- School Children (PWI-SC; Cumming & Lau, 2005), (v) the Kutcher Adolescent Depression Scale (KADS; LeBlanc, Almudevar, Brooks & Kutcher, 2002), (vi) and Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). However, time restrictions due to school schedule meant that the complete test-battery could not be implemented in each school and consequently a partial counterbalancing was used to obtain data on all variables albeit with a degree of missingness.

[13] This research used Qualtrics because it was the software available and supported at the University
[14] Questionnaires were completed during school hours in order to get more consistent results due to consistency in test taking environment.

Participants in the Victorian high-school were directed to complete the survey in the computer room during regular class hours. The school allocated one period of teaching for the completion of the online survey. To accommodate school timetable requirements, different year levels completed the survey during different trimesters. The participants were provided with a link to the online survey package. All year levels were instructed to complete the CAMWB and the A-COPE. The students who completed the survey during the first session completed the RSES and the KADS, while the students who completed the survey during the second session completed the BMSLSS-PTPB, the PWI-SC, and the KADS.

Principals of the primary and two middle schools did not wish for their students to complete the A-COPE. They expressed some concerns over some items relating to religion[15]. Similar to Australia, time restriction applied to the French context, therefore the allocation of instruments was counter-balanced. The French primary school organised for two classes of year 6 students to complete the CAMWB, the BMSLSS-PTPB, and the PWI-SC. This was done during usual class time and under the supervision of teachers. The school did not have a computer room and therefore the participants used a pen-and-pencil format of the survey.

The French middle schools distributed the survey to the students during free periods of their school schedule. Two schools used a pen-and-pencil format and completed the CAMWB, the BMSLSS-PTPB, the PWI-SC, the RSES and the KADS. The third middle school directed their students to an online link in the computer room which contained the CAMWB, the A-COPE, and the RSES.

The French high-school organised for the participants to complete the survey during allocated time slots over a two-week period. Survey completion was done via an online link in

[15] French education system is strictly secular, and some school principals preferred the topic of religion not to be discussed in their institutions.

computer rooms. Participants the CAMWB, the A-COPE, the PWI-SC, the RSES and the KADS.

Summary of chapter three: Research aims and significance

This chapter critically reviewed the methodology used in cross-cultural research. It outlined four major potential flaws, namely, the sampling consideration, the unit of measurement used, the operationalisation of the variables, and the cross-validation of the instruments. In addition, specific concerns regarding this research were addressed, namely the sampling frame, the social desirability threat, the age-appropriate language, the ethical considerations, and the general procedure employed.

These first two chapters have identified the need to better understand adolescent development, and more specifically adolescent SWB. Additionally, they demonstrated that the definition of adolescent SWB remained unclear and that the factors influencing it differed between studies. One issue was identified that contributed substantially to this problem was the lack of an appropriate instrument to measure adolescent SWB. Contributing to this problem was the fact that most of the research investigating the factors that influence adolescent well-being date from ten years ago and more. France and Australia could be regarded as fast-paced societies that have experienced important changes impacting on adolescent development in recent years and, consequently more up-to-date research was needed. The advantage of producing cross-cultural research was also to allow for comparison of cultural influences on adolescent adjustment.

To address these important issues, this research (i) developed a new instrument to measure well-being in adolescents, (ii) informed a model of adolescent well-being in France and Australia, (iii) investigated coping behaviours of French and Australian adolescents, and (iv) established the relationship between adolescent well-being and coping in the two

countries. Table 14 below outlines the seven studies conducted in this research, their aims, their hypotheses, the sample and the instruments used, the analytical method employed, and the results obtained.

Table 14

Aim, hypotheses, methodology, analyses, and results of the seven studies of this program of research

Study	Aims	Methodology	Analyses	Results
1 a	Conduct a literature review to identify domains of adolescent SWB. Gather first-hand information from adolescents on domains affecting their SWB by directing a two-phase pilot study with an open-ended questionnaire. Triangulate the data collected and obtain feedback from a panel of well-being experts.	31 Australian adolescent students aged between 12 and 18 (M = 14.55, SD = 1.82) answered the first form of the pilot the questionnaire 22 Australian adolescent students aged between 14 and 15 (M = 14.77, SD = 0.43) answered the second form of the pilot the questionnaire A panel of well-being experts (four school staff, the school nurse) to triangulate the data collected and review the questionnaire. Four school staff, school and the fourth was a school nurse	Literature review Frequency count of most frequently reported domains of life affecting SWB	A 58-item instrument intending to cover ten domains (two affective domains and eight cognitive domains) was produced. These ten domains were, Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Use of Technology, Worries, Body Image, and Physical Health. The instrument was called the Comprehensive Adolescent Measure of Well-Being (CAMWB).

1 b	Investigate the suitability of the 58-item generated after the first two-phases of pilot testing. Test the construct validity of the CAMWB using quantitative methods. Assess the reliability of the CAMWB	1013 Australian adolescent students aged between 10 and 18 (*M* = 14.70, *SD* = 1.44) filled the online version of the 58-item questionnaire developed in study 1a	Exploratory Factor Analysis (EFA) for construct validity Computation of Cronbach alphas for reliability	Usability was supported as no items attracted difficulty in understanding during survey completion. EFA produced a seven-factor structure, which included Body Image, Experience of Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions and Worries, Self-Appraisal, and Activities. Reliability was supported as Cronbach's alpha for the subscales ranged between .58 and .89, and the overall internal consistency of the scale was of 84.
1c	Re-test the construct validity of the CAMWB using quantitative methods. Assess the reliability of the CAMWB	1092 Australian adolescent students aged between 10 and 18 (*M* = 14.71, *SD* = 1.45) filled the online version of the 58-item questionnaire developed in study 1a	Exploratory Factor Analysis (EFA) for construct validity Computation of Cronbach alphas for reliability	EFA outlined an eight-factor structure, which included Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities, and Self-Appraisal. Reliability was supported as Cronbach's alpha for the subscales ranged between .69 and .89, and the overall internal consistency of the scale was of 85.
2	Improve the domain coverage of the CAMWB Map constructs of the CAMWB across cultures	Two women and two men aged between 25 and 52 (*M* = 37.75, *SD* = 12.45) were recruited for the translation of the questionnaires	Not applicable	Items were generated, demographics information were deleted. The back-translation process was successful.

	Educational experts to review the other questionnaires of the study Translate and back translate questionnaires used in the research Investigate the suitability and readability of the French version of the CAMWB	A panel of educational experts, two males and six females (school staff) aged between 26 and 56 (*M* = 37.83, *SD* = 11.77) reviewed the items and generated new questions. Three women and three men aged between 21 and 59 (*M* = 40.17, *SD* = 17.87) were recruited for the back translation of the questionnaire. 53 French children (aged between 10 to 11 (*M* = 10.19, *SD* = 0.44) completed the translated version of the CAMWB		The piloting the CAMWB was satisfactory, as the participants responded in a meaningful manner and no item was flagged as problematic
3	Investigate the construct validity of the CAMWB in a French sample Assess the reliability of the CAMWB	385 French adolescents aged between 14 and 17 (*M* = 15.43, *SD* = 0.67) filled the online version of the French version of the CAMWB developed in study 2	Exploratory Factor Analysis (EFA) for construct validity Computation of Cronbach alphas for reliability	EFA produced an eight-factor structure, Self-Appraisal, School Satisfaction, Peer satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Dissatisfaction, and Worries. Cronbach's alpha values ranged from .56 to .79 for the subscales, and .84 for the overall scale

4	Investigate the construct validity of the CAMWB in an Australian sample	377 Australian adolescents aged between 14 and 18 (*M* = 16.01, *SD* = 0.87) filled the online version of the English version of the CAMWB developed in study 2	Exploratory Factor Analysis (EFA) for construct validity	EFA produced an eight-factor structure, Self-Appraisal, School Satisfaction, Peer satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Satisfaction, and Worries.
	Assess the reliability of the factors measured in the CAMWB		Computation of Cronbach alphas for reliability	Cronbach's alpha values ranged from .66 to .85 for the subscales, and .91 for the overall scale.
5	Examine whether the pattern of correlations between the CAMWB subscales differed as a function of age	639 French adolescents aged between 10 and 18 (*M* = 12.16, *SD* = 1.78) filled the online or pen and paper form of the survey containing CAMWB, the BMLSS, the PWI-SC, the KADS, and the RSES.	Pearson's product correlations	Patterns of correlations differed as a function of age.
	Confirm construct validity of the CAMWB found in study 3 and 4, using entire Australian and French sample		Confirmatory Factor Analysis (CFA)	Construct validity was supported, and the Australian model fitted the data more meaningfully.
	Identify cultural differences between the two model of adolescent SWB	714 Australian adolescents aged between 12 and 18 (*M* = 15.28, *SD* = 1.08) filled the online survey containing CAMWB, the BMLSS, the PWI-SC, the KADS, and the RSES.		CFA showed that the French model of SWB shared the strongest path weights with Negative Emotions and Worries, while for the Australian the strongest associations were recorded with Self-Appraisal and School Satisfaction.
	Establishing the psychometrics of the CAMWB in Australia and France			Convergent, divergent and criterion validity were supported.
6	Investigate the adolescent profile of coping	714 Australian adolescents aged between 12 and 18 (*M* = 15.28, *SD* = 1.08)	Confirmatory Factor Analysis (CFA)	The A-COPE showed to be a valid instrument across the two samples.

	Ensure appropriate use of the A-COPE in the Australian and French samples using a multi-level analysis Establish the Australian and French profile of adolescent coping	639 French adolescents aged between 10 and 19 (*M* = 14.13, *SD* = 2.02)		Australia and France presented with a different model of coping, as indicated by different path weights. Cultural influences were able to explain these differences.
7	Develop a model of adolescent coping and SWB for both Australia and France.	714 Australian adolescents aged between 12 and 18 (*M* = 15.28, *SD* = 1.08) 639 French adolescents aged between 10 and 19 (*M* = 14.13, *SD* = 2.02)	Discriminant Function Analysis (DFA) Structural Equation Modelling (SEM)	Analyses highlighted that SWB was predictive of country and associated with France, and that coping was predictive of country and associated with Australia.

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Chapter 4

Study 1a: Adolescent well-being: creation of a new instrument

Chapter two provided an overview of existing literature on adolescent Subjective Well-Being (SWB) as well as a critical review of the existing instruments and their limitations. In response to these limitations, this study addressed the development of a new instrument to measure adolescent SWB in a current and effective manner. The instrument was designed to map the theoretical framework of the most commonly accepted model of SWB, which consists of the emotional and the cognitive components of well-being (Andrews & Withey, 1976; Argyle, 1987; Bradburn, 1969; Diener, 1984; Diener & Larsen, 1984). The development of the test was informed by Classical Test Theory (Novick, 1966).

Mapping the model of SWB

To maximise domain coverage, several constructs were considered in the development of the new instrument. Although the emotional and cognitive components of contemporary models of SWB are related, they are distinct (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984). The emotional component represents *affect* (Crawford & Henry, 2004; Diener, 1984; Gilman & Huebner, 2003), while the cognitive component is referred to as life satisfaction (Andrews & Withey, 1976; Argyle, 1987; Diener, 1984; Diener & Larsen, 1984). The emotional component of SWB is narrow in scope and includes positive and negative affect (Crawford & Henry, 2004; Diener, 1984; Gilman & Huebner, 2003). In contrast, the cognitive component can be examined through a wide variety of life satisfaction indicators. While it is recognised that there are a number of contributing factors to adolescent SWB documented in the literature (see Table 15), researchers have yet to develop an instrument that comprehensively measures these factors.

Huebner, Drane, and Valois (2000) highlighted the importance of measuring the cognitive component, life satisfaction, using a domain-specific approach, as it offered a more comprehensive assessment for SWB in children and adolescents. Similarly, a recent study by Rees and Main (2015) showed that children scored differently on the specific domains of life satisfaction. For example, children's scores on friendship satisfaction appeared to be independent of their scores on a measure of money and possessions. These results reinforced the need for a multidimensional instrument. It had further been suggested that, as the scores were to some degree independent, reduction of SWB to a simple overall score would be misleading (Drew & Huebner, 1993; Yoo & Ahn, 2017). This was not to dismiss the possibility that there might be some utility in higher order factor models of SWB and as a result, a measure of SWB could comprise of domain-specific scores for the emotional and cognitive components, as well as an overall score of SWB. Consequently, it was necessary to develop a multi-dimensional measure that identified the different factors contributing to adolescent SWB.

Table 15

Life domains linked to SWB and example items that tap into these domains

Construct	**Example items**	**Literature**
Emotional responses – Positive and Negative affect	I respect calm I feel like crying	Diener et al. 1999; Huebner, 1994; Jovanovic, 2015; Kashdan, Biwas-Diener, & King, 2008; Tian, et al, 2015
School satisfaction	I have a good relationship with my teachers How satisfied are you with your subject choices?	Huebner, 2010; Konu & Lintonen, 2005; Rask, Astedt-Kurki & Laippala, 2002; Heffner & Antaramian, 2016; Leung & Zhang, 2000;
Experience of bullying	At school do you see evidence of - name-calling? - students being laughed at	Park, 2004; Valois, Zullig, Huebner, & Drane, 2001; Baxter, 2016; Eisenberg, McMorris, Chatterjee, & Gower, 2016; Rigby 2000
Relationship satisfaction & Perceived peer support	Do you go on social outings with friends? Do you think your friendship groups are positive and supportive	Diener et al. 1999, Gilman, 2001; Lewinsohn, Redner, & Seeley, 1991; Gilman & Huebner 2006; Traylor, Williams, Kenney, & Hopson, 2016;
Family environment	How satisfied are you with your relationship with your mother? A large family makes me feel supported	Antaramian et al., 2008, Bowes et al. 2010; Huebner, 1994, Park, 2004; Gilman & Huebner 2006; Greenspoon & Saklofske, 1997; Leung & Zhang, 2000; Suldo & Heubner, 2004b;
Health, exercise, healthy diet	I sleep well How frequently do you eat fruits and vegetables	Bradshaw, Keung, Rees, & Goswami, 2011; Shek, 1998c; Zullig, Valois, Huebner & Drane, 2005a; Gilman, Meyer & Perez, 2004;
Body image, weight control behaviour	I am satisfied with my weight I feel different from others because of the way I look	Knauss, C., Paxton, S. and Alsaker, F., 2007; Yeats, Martin, Petrie, & Greenleaf, 2016; Leung & Zhang, 2000
Technology use	How often do you use Facebook	Walkenburg & Peter, 2007
Worries – Financial worry, achievement	I worry about money I worry about having a successful career	Diener & Diener, 1995; Grob, 2000; Oliver & Brough, 2002; Suldo & Heubner, 2006

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Emotional component.

Positive and negative affects are the dispositional dimensions that make up the affective component of SWB (Crawford & Henry, 2004; Diener, 1984; Gilman & Huebner, 2003). Positive affect refers to the extent an individual experiences pleasure from the environment, characterised by feelings of excitement and alertness (Crawford & Henry, 2004). In contrast, negative affect refers to subjective distress and unpleasurable engagement. Individuals with high scores on negative affect would appear to experience sadness or blunt affect (Crawford & Henry, 2004). Contrary to initial assumptions from researchers (Costa & McCrae, 1980; Green, Goldman, & Salovey, 1993; van Schuur & Kiers, 1994), positive affect and negative affect cannot be considered at opposite ends of the same spectrum. It is now widely accepted that positive and negative affect are moderately independent constructs (Crawford & Henry, 2004; Tellegen, Watson, & Clark, 1999; Watson, Clark, & Tellegen, 1988). An optimum level of well-being is characterised by high levels of positive affect and low levels of negative affect (Park, 2004), and the measure of SWB involves survey questions that examine positive emotions and negative emotions.

Cognitive component.

The cognitive component of SWB, life satisfaction, consists of several interrelated and interdependent factors (Andrews & Withey, 1976; Argyle, 1987; Diener, 1984; Diener & Larsen, 1984). Huebner (1994) suggested that the development of a meaningful measure of adolescent SWB required multiple aspects of life satisfaction to be represented and evaluated. The current study reviewed the existing literature on factors contributing to life satisfaction in adolescent populations and documented a number of potential domains to include in the scale, these included school satisfaction, exposure to bullying, friendship satisfaction, family satisfaction, physical health, body image, technology use, and worries. As discussed in chapter one, behaviours, beliefs in subjective norms, and attitudes are informed by socio-

cultural context (Bronfenbrenner, 1969) and therefore, the context must be considered as key contributors to SWB.

School satisfaction.

Schools are considered the primary social context for children and this environment exposes them to learning, rules, and peers (Prati, Cicognani, & Albanesi, 2017; Wang et al, 2014, Wentzel, 2010). School environment is a critical aspect of an adolescent's life and researchers have identified as a key contributor to SWB (Cummins & Lau, 2005; Ferguson, Kasser, & Jahng, 2010; Huebner, 1994; Huebner, Laughlin, Ash, & Gilam, 1998; Moos, & Moos, 1994). School environments can be conceptualised around two constructs; a sense of community and a sense of alienation. A sense of community can emerge from the school environment, in which students feel valued by their teachers and are able to fulfil their social needs (Prati et al., 2017; Pretty, Conroy, Dugay, Fowler, & Williams, 1996; Te Wang & Eccles, 2012; Thapa, Cohen Guffey, & Higgins-D'Alessandro, 2013; Vieno, Santinello, Pastore, & Perkins, 2007). This sense of community was shown to be a protective factor to positive adolescent adjustment, with adolescents reporting lower anxiety, lower depression, less antisocial behaviour, and more prosocial behaviour, which also fostered greater academic achievement (Aldridge & McChesney, 2018; Wang et al., 2014) and quality peer interactions (Hallinan, Kubitschek, & Liu, 2009). In this context, adolescents are likely to develop positive relationships with teachers, which have also been shown to be associated with positive outcomes such as school satisfaction and school safety (Al-Yagon & Margali 2013; Britzman 2012; de Boer et al, 2010; Te Wang & Eccles, 2012; Thapa et al., 2013; Twemlow, Fonagy, & Sacco, 2004).

However, poor school satisfaction could be the result of a sense of alienation driven by exposure to peer rejection and bullying, as well as feelings of unfairness derived from

poor teacher-student relationships (Prati et al, 2017; Santinello, Vieno, & Devogli, 2009; Vieno, Lenzi, Santinello, & Scacchi, 2013). Moreover, adolescents dissatisfied with school tend to be at greater risk of developing problematic behaviours such as substances abuse (Napoli, Masrsiglia, & Kulis, 2003), use of violence (Resnik et al., 1997), and depression (Bond et al., 2007). The French and the Australian school systems were thought to differ in their approach to education, with Australia developing strategies to foster positive environments within school settings (Gregory et al., 2018; Halliday, Kern, Garrett, & Turnbull, 2018; Lawrence et al., 2016; Slemp et al., 2017) while France appeared to focus primarily on academic performances (Coulangeon, 2018). The evidence presented suggested that the school environment was an important factor to consider when identifying domains of life satisfaction, and potentially identify cross-cultural differences.

Bullying experience.

Bullying has been widely cited as a factor contributing to decreased SWB in adolescent populations (Gobina, Zaborskis, Pudule, Kalnins, & Villerusa, 2008; Kerr, Valois, Huebner, & Drane, 2011). Given that data collection for this research took place in school settings where bullying was commonly reported, bullying was a variable of interest. Bullying can be defined as the repetition of aggressive behaviours with the intent to hurt the target, in which the perpetrators exert power over their victim (Rigby, 2000; Olweus, 2013). Bullying can be direct, taking the form of physical and verbal aggression, or indirect, which manifests through social exclusion. Both forms can be harmful (Rigby, 2000; Olweus, 2013). Further, with the use of mobile phones and social media, bullying has also been reported online and is known as cyberbullying (Erentaite, Bergman, & Zukauskiene, 2012; Smith, Gorzig, Robinson, 2018; Wang, Iannotti, & Nansel, 2009, 2011). The prevalence of bullying in schools has alarmed school authorities (Kerr et al., 2011; Rigby, 2017; Rigby & Slee, 1993). Cross and colleagues (2009) recorded the prevalence of bullying in 7,418 Australian students,

for which incidents were occurring “every few weeks or more often”, and found that figures were high, ranging between 27 to 32 percent depending on the grade level of the students. More recent data in Australia showed the rate to be around 15 percent on a sample 1688 children (Rigby & Johnson, 2016) and 13 percent on a sample of 2,967 adolescents (Thomas et al., 2017). However, when children younger than eight and nine were studied, bullying rates were around 29 percent (Bayer et al., 2018). French data showed that on a sample of 1422 adolescents, 26 percent reported being involved in school bullying (Kubiszewski, Fontaine, Potard, & Auzoult, 2015). Another study conducted in France found the bullying rate for students in middle school to be around 8 percent, however the rate for year 7 was at 14 percent (Algan, Guyon, & Huillery, 2015). These figures show that bullying is a common issue for Australia and France.

Rigby (2000) studied an Australian population of 845 adolescents and concluded that the mental health of adolescents was related to the degree they were exposed to bullying. Bullying has also been associated with risky behaviours such as binge drinking or use of illicit drugs (Espelage, Bosworth, & Simon, 2000; Thomas et al., 2017). Maladjustment and poor development caused by bullying may lead to an onset of psychological disorders such as depression and anxiety (Espelage et al., 2000). Bullying may represent a source of stress and anxiety for victims and witnesses, and its impact on SWB may be enduring (Rigby & Slee, 1993; Thomas et al., 2017). Considering the consequences of bullying on youth development (Espelage et al., 2000), the instrument developed in this research incorporated bullying as a domain of life appraisal.

Friendship satisfaction.

Support from friends has been identified as an important buffer to bullying victimisation (Demaray & Malecki, 2003; Rigby, 2000) and is claimed to be critical during

adolescence (Erikson, 1993; Park, 2004; Tetzner, Becker, & Maaz, 2017). Friendships, operationalised as feelings of closeness with peers and perceived peer support, have been identified as the strongest predictor of adolescents' SWB for children aged 10 years old (Oriol et al., 2017). During adolescence, individuals move away from their parents to form close bonds with peers (Brown & Larson, 2009; Erikson, 1963; Steinberg & Morris, 2001). The majority of adolescents negotiate this change well and subsequent interactions with peers offer avenues for positive development such as peer support, identity formation, and autonomy (Steinberg, 2002). As a consequence, perceived social support and peer acceptance during this time is crucial (Brown, 2011; Veronneau, Trempe, & Paiva, 2014). In the annual youth report produced by Mission Australia (2015), teenagers indicated that they valued friendships, over family, school satisfaction, and physical and mental health. Adolescents also reported that friends were their primary source of support for important issues. A French study showed that being accepted by peers was an important contributor to self-esteem for adolescents (Terriot, Vignoli, Lallemand, & Bourcier, 2017).

However, the growing importance of friends may have negative influences on the individual's SWB. Adolescents are highly sensitive to rejection from peers relative to other age groups (McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Norona, Salvatore, Welsh, & Darling, 2014; Rubin, Bukowski, Parker, & Bowker, 2008) and peer-related problems emerge as the primary type of stressful event (Washburn-Ormachea, Hillman, & Sawilosky, 2004). These issues can have devastating consequences on developing individuals such as symptoms of depression (Veronneau et al., 2014). Peer isolation and low friendship support were positively correlated with feelings of loneliness, low academic performances, lack of social adjustment, fewer prosocial behaviour, and higher risk of distress (Veronneau et al, 2014). Considering the importance of peers for this age group, the new instrument intended to measure perceived peer satisfaction.

Family satisfaction.

Family dynamics have been shown to have an impact on an individual's SWB (Demo & Acock, 1996a; 1996b; Rask, Astedt-Kurki, Paavilainen, & Laippala, 2003). Family support was shown to be one of the best predictors of SWB in adolescents (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Lawler, Newland, Giger, & Roh, 2015; Newland, Lawler, Giger, Roh, Carr, 2015). Supportive families were also identified as an important resource for adolescents facing challenges (e.g. transition into high school; Oriol et al., 2017). In Australia, parents (76%) were the second point[16] of call when adolescents were facing issues (Mission Australia, 2015). Similarly, in France, 88 percent of youths reported that they had a supportive family system (OpinionWay, 2016).

Family environment can also create stressors for adolescents. Questioning of authority is often associated with adolescence in Western cultures (Steinberg, 2001). It is thought that the formation of independent personal identities might contribute to adolescent rebellion, which could create conflict within the family and thus influence SWB (Steinberg, 2001). Further, family structure has changed in recent decades. An ABS study (2012) revealed that 15 percent of Australian families were single-parent families. Similar results have been reported with 23 percent of French families identified as single-parent families (Institut National de la Statistique et des Etudes Economiques - INSEE, 2014). Researchers have warned that this change in family structure may be a threat to adolescent adjustment (Bor, Dean, Najman, & Hayatbakhsh, 2014; Capron, Therond, & Duyme, 2007; Levin & Currie, 2010). Adolescents living in single-parent families and living with step-parents reported lower levels of SWB (Levin & Currie, 2010). However, these associations were found to diminish when communication between parent and child was open and satisfactory (Levin &

[16] Australian adolescents first resource was friend(s) (87%)

Currie, 2010). Considering the importance of family in both Australia and France, and its impact on SWB, a domain targeting family satisfaction was included in the questionnaire.

Physical health.

Physical health has been proposed as an external indicator of SWB (Chan, 2015). Three avenues regarding physical health were documented, sleep pattern, healthy eating, and the practice of exercise. In an adolescent population, Hoyt, Chase-Lansdale, McDade, and Adam (2012) found that better physical health was associated with positive SWB. The inclusion of physical symptoms and somatisation as part of the scale being developed for this study was deemed imperative because research showed that adolescents internalised their problems (Freyler, Kőhegyi, Köteles, Kökönyei, & Bárdos, 2013; Gullone & Cummins, 1999) and therefore measuring their physical symptoms may serve as an indicator of their SWB. Sleep is an issue of considerable concern for adolescents, and a review of 41 studies worldwide showed that with adolescence, bedtime was delayed (Gradisar, Gardner, & Dohnt, 2011). A study found that 60 percent of adolescents received less than the recommended sufficient hours of sleep on week-nights and symptoms such as feeling fatigued or waking up in the middle of the night were also commonly reported (Gradisar, Wolfson, Harvey, Hale, & Rosenberg, 2013). These sleep difficulties, when persistent, have been associated with negative feelings and health-related anxiety (Barksy Wyshak, & Klermanet, 1990), which could, in turn, reduce perceived SWB. Among French adolescents, sleeping disturbances were found to be correlated with suicidal ideations (Choquet & Menke, 1989; Choquet, Kovess, & Poutignat, 1993).

In addition, sleep deprivation was found to be associated with poorer dietary behaviours (Agostini, Lushington, Kohler, & Dorrian, 2018). Australian adolescents were found to be more likely to skip breakfast and eat junk food if they did not get enough sleep

(Agostini et al., 2018), suggesting an important relationship between sleeping pattern and healthy eating. In France, although breakfast consumption among adolescents was frequent, it was found to decrease with age (Godeau, 2012), in part due to an accelerated way of life (Hebel, 2013). Although France has a historical culinary past, French adolescent reported high consumption of soda compared with other European countries (Godeau, 2012). The benefits of measuring perceived health as part of SWB are two-fold.

Participation in physical activity and extracurricular activities is also associated with physical health and SWB (Bailey, 2006; Fox, 1999, Taylor, Gillies, & Ashman, 2009). Involvement in such activities would be part of a child microsystem, according to Bronfenbrenner (1979), and as such these activities have a direct effect on the individual's development. Physical activity was found to affect SWB by improving mood and self-perception (Fox, 1999) as well as promoting the engagement in meaningful relationships with peers and adults (Bailey, 2006). A systematic review reported involvement in clubs and extra-curricular activities to be a strong indicator of adolescent physical health and SWB (Eime, Young, Harvey, Charity, & Payne, 2013). Mahoney, Larson, and Eccles (2005) investigated the effect of organised activities such as sports, music and clubs and found that these organised activities fostered positive development among youth. Involvement in such activities offered the opportunity to learn new skills and abilities, which allowed for self-confidence growth. Darling (2005) proposed that time spent on extra-curricular activities was negatively correlated with smoking and use of marijuana or other drugs, and was positively correlated to higher grades, higher school satisfaction and higher academic achievements. These results were replicated by Oosterhoff, Kaplow, Wray-Lake, & Gallagher (2017), who showed that organised activities help adolescents to develop meaningful relationships with peers and adults, which in turn related to lower levels of deviant behaviours. Data regarding French adolescents' physical activity were concerning as only 25 percent of 11 years old and

16 percent of 15 years old met the recommended one hour of physical activity daily (Godeau, 2012). French students ranked 39 out of 42 countries on the practice of exercise (Godeau, 2012). In contrast, Australia has a sporting culture (Fisher & Sonn, 2002; Moran, 2011) and students identified sport as a facilitator to their well-being (Halliday, Ker, Garett, & Turnbull, 2018). In summary, the behaviours of adolescents on indicators of physical health shared similarities between Australia and France, however some cultural aspects were expected to influence participants scores. Measuring the perceived health of adolescents enables researchers to identify the degree to which perceived health is associated with SWB, while also allowing the perceived physical health of adolescents to be assessed.

Body image.

The adolescent period represents a critical time of physical change that may create body image concerns (Rosenblum & Lewis, 1999). Body image dissatisfaction in adolescents has been shown to influence SWB (Delfabbro, Winefield, Anderson, Hammarstrom, & Winefield, 2011). Australian adolescents have consistently identified body shape to be one of the leading causes of worry (Mission Australia, 2010 - 2017). Body dissatisfaction has also been documented in the French literature, and studies showed that adolescents ruminate about their body shape, which was shown to affect their self-esteem (Fouchard & Courtinat-Camps, 2013; Ninot & Delignieres, 2000). The current understanding of body-image related issues has been broadened beyond the desire to be slim, a concern held primarily by women and girls (McCabe & Ricciardelli, 2001). Body image is a common concern for both males and females, with approximately 45 percent of boys and 70 percent of girls wanting to change their body shape (Smolak, 2012). However, there is now increasingly more recognition of male body image issues such as a “drive for muscularity” (Hoffmann & Warschburger, 2016; McCreary & Sasse, 2000). Male bodies are increasingly depicted as toned and muscular in media, advertising, and movies (Grogan, 2016). Olivardia (2002) posited that there was a

parallel between this recent focus on changing male bodies and men's dissatisfaction with their body shape. Studies showed that this focus on male ideals have been associated with men experiencing low self-esteem and psychological distress (McCreary, 2012; Solomon-Krakus et al., 2017; Thompson & Cafri, 2007). Although both young males and females are known to engage in similar behaviours such as excessive exercise, dieting and the use of laxatives, their desired outcomes are different (Yager, Gray, Curry, & McLean, 2017). The open-ended questions of the pilot questionnaire documented whether body image needed to be included as a domain affecting youth's SWB.

Technology use.

Technological advances, particularly those during the last decade, have dramatically changed the social landscape (Larson, 2002; Schwartz, Coté, & Arnett, 2005) and in doing so have altered indicators of SWB (Bernard & Stephanou, 2017). The penetration rate of mobile phone plans surpassed 120 percent in most developed countries and children as young as six years old now own a mobile phone (Foerster & Roosli, 2017). The Australian Bureau of Statistics (2012) revealed that 79 percent of children between the ages of five and eight were using the internet daily. In France, 90% of the adolescents aged between 12 and 17 years old owned a mobile phone and research showed that young French individuals were using the internet more than in similar countries (Barré, 2017). Individuals have stated they felt inseparable from their devices, and adolescents use mobile phones to "stay in touch" and belong to a group (Valkenburg & Peter, 2007). In relation to SWB, the use of mobile phones has yielded mixed results. Phone communication, both voice and online, has been shown to be a strong predictor of positive affect, indirectly through bonding (Chan, 2015). Phone communication has been established as an extension of in-person communication and was seen to offer social and emotional support (Ling, 2004). In contrast, using mobile phones or tablets for information seeking and passing time was associated with lower SWB (Chan,

2015). More generally, the use of screened devices was related to higher levels of loneliness (Abeele & Roe, 2013; Bian & Leung, 2015), low mood (Augner & Hacker, 2012), social stress (van deursen, Bolle, Hegner, & Kommers, 2015), lower academic performance (Judd, 2014; Rosen, Carrier, & Cheever, 2013; Samaha & Hawi, 2016), lower physical activity (Thomée, Harenstam, & Hagberg, 2011), and behavioural problems (e.g. hyperactivity, low impulse-control; Roser, SChoeni, Foerster, & Roosli, 2016). However, it is not possible to dismiss that adolescents may use their mobile phones as an outlet when they are experiencing negative feelings. Given the growing reliance on technology in everyday life, exploring adolescents' usage of mobile phones for social connectivity in particular, was considered important when assessing SWB.

Worries.

During adolescence, individuals begin to gain the capacity to think abstractly about their behaviours and to anticipate future events (Piaget, 1959). This cognitive growth, although essential, has been claimed to lead to the emergence of worry (Laugesen, Dugas, & Buckowski, 2003). Worry is defined as the experience of persistent and uncontrollable intrusive thoughts that target future events (Borkovec, Robinson, Pruzinsky, & DePreee, 1983). Adolescence is marked by changes and personal transitions, which can exacerbate worry (Frydenberg, 2008). Although most adolescents reported only infrequent worrying (Brown, Teufel, Birch, & Kancherla, 2006), 25 percent reported excessive and uncontrollable levels of worry (Fournier, Freeston, Ladouceur, Dugas, & Guevin, 1996). This is of concern because worry has been linked to decreased SWB and lower academic performance (Owens, Stevenson, Hadwin, & Norgate, 2012; Pekrun, 1992). Additionally, adult worriers reported that their excessive worrying behaviour began in adolescence (Fournier et al., 1996).

Competence related worry has been identified by multiple studies as a major area of concern for adolescents (Fisher, Keogh, & Eccleston, 2016; Silverman, Greca, & Wasserstein, 1995; Tikkanen, 2016). Students who lacked confidence in their academic competencies may report lower self-esteem (Pietarinen, Soini, & Phyalto, 2014). The literature suggested that self-doubt and anxiety borrow attentional resources needed to perform on tasks optimally (Owens et al., 2012; Lauermann, Eccles, & Pekrun, 2017). It follows that students presenting with worries regarding their academic abilities reported poorer performances compared to students without such worries (McDonald, 2001). Aside from academic worries, researchers stated that personal safety, personal or family member health, planning for the future, relationships, financial stability, and job prospects were also of concern for school-aged children. A commonly identified characteristic of depression is the intrusion of worrisome thoughts. These thoughts are believed to be a contributing factor to low levels of SWB (Pekrun, 1992). While worrying has been documented in the literature as a factor affecting SWB, and the onset of worrying has been suggested to coincide with the onset of adolescence (Fournier et al., 1996), worry-related items were not initially included in the pilot questionnaire. This approach was taken to avoid inciting participant negative responses. It was desirable that, if worry was to be covered by the questionnaire, it should be the result of being a real need coming from the adolescent participants rather than from a literature-informed adult.

The current study investigated the traditional model of SWB in relation to a young population. Previous SWB studies have in large part investigated adult populations, and the instruments used in those studies were unlikely to be fit for purpose with a youth sample. A review of the current literature identified eight domains that could contribute to life satisfaction. Rather than including all these domains in the initial instrument, reports from adolescent participants regarding factors contributing to their life satisfaction were

considered. Consequently, domains such as body image and worry were not included in the first version of the instrument, which was used for the pilot study. The decision to include and exclude some domains was based on the existing instruments' domain coverage, because body image and worry were not included in those other instruments, it was decided to model this approach. To facilitate the understanding of the pilot study purpose by the participants, the questions of the instrument were grouped under four overarching categories: self, lifestyle, relationships, and school environment.

Aim and hypotheses

The study involved designing a questionnaire to measure SWB in adolescents aged ten to 19, using a two-phase pilot process[17]. This age range was selected in accordance with the definition of adolescence provided by the World Health Organisation (WHO, 2015). The questionnaire was designed to be used for cross-cultural comparison; consequently, this study followed the recommendations of experts in the field and anticipated a certain amount of redundancy to allow the domains of the questionnaire to be approached from different angles (Hofstede, 1980). The literature was consulted to provide an overview of the existing knowledge on the topic and to identify and inform the breadth of content domains. This literature review provided a framework for complete domain coverage with item generation and guided the establishment of content validity. The two-phase pilot study allowed for item generation, assessment of item interpretability and scale usability.

During phase one of the pilot study, participants filled a pilot version of the questionnaire[18], which included open-ended questions in order to gather first-hand

[17] Qualitative material was collected in the development of the pilot instrument to identify the scope of the content to be covered. Those results are not reported in this thesis to manage the length of the dissertation.

[18] Using open-ended questions with adolescents allows for obtaining directly adolescents' viewpoint and experiences, instead of adults or experts pre-existing notions. This process is recommended in the field of test development and has been followed by previous research in Australia and France (Aldridge & McChesney, 2018; Pommier et al., 2002)

information from adolescents on domains affecting their well-being. Collecting information from adolescents directly was regarded as best practice in the fields as it allowed for the target population' viewpoint instead of focusing on professionals' knowledge (Halliday et al., 2018; Pommier et al., 2002). Most frequently reported domains were then examined and items pertaining to these domains were generated. During phase two of the pilot study, participants filled the updated version of the questionnaire and were encouraged to suggest additional questions or domains to be covered. Additionally, a method of triangulation was used at the end of phase two. A panel of well-being experts reviewed the questionnaire and provided feedback. Using a combination of reviewing the literature, qualitative feedback from students and experts, it was expected that the newly developed scale would demonstrate content validity by congruence between key findings from the literature review and the feedback obtained from the pilot study.

Phase one: Method

Participants

The first phase of the pilot study involved a sample of 31 adolescent students aged between 12 and 18 and included Australian born individuals, as well as those from diverse ethnic backgrounds (Table 16). These 31 students were part of two clubs within the high-school, peer support, and leadership and achievement. This sample was sourced from a South-East Queensland co-educational high-school, with approximatively 2000 students, from grade 6 to 12, enrolled at the time of the survey. The Australian population is multi-cultural, and it was intended for this diversity to be represented. Furthermore, including adolescents whose native language was not English was considered important as a means of ensuring the questionnaire could be understood by those with a Grade 6 proficiency in English. However, the sample used was more diverse than the census data, $\chi^2(3) = 31.93$, $p < .001$. There were three times more individuals from New Zealand, and Asians made up a

quarter of the sample. It was important to note that census data reflected adult demographics for the nation, and therefore was indicative only. The school is located in a medium to high socio-economic status area, as indicated by the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), which is part of the SEIFA[19] score. The area where the high-school is located, scored in the 7th decile with a raw IRSAD score of 1034.

Table 16

Breakdown of participants' nationalities, gender and age for the pilot study phase one against statistics of the 2011 government census data for Queensland

Descriptive	**Pilot one (N = 31)**		**Census data 2011**
	N	percent	percent
Australian	15	48.4	73.7
New Zealand	4	12.9	4.4
Asian	8	25.8	2.4
Others	4	12.8	6.7
Female	17	54.8	N/A
Age	*M* = 14.55, *SD* = 1.82		N/A

Created by the author, Camille Rault, 2020.

Material

Pilot Questionnaire Adolescent Well-Being. The instrument comprised 29 items, tapping into four domains: *Self,* "I have a number of qualities", *Lifestyle,* "Do you participate in any sports?", *Relationships,* "How would you rate your relationship with your father?", and *School environment,* "Have you ever been excluded from a group of friends?". The

[19] SEIFA is a suite of four measures including the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) by geographical area, developed by the Australian Bureau of Statistics. Each of the four measure present data on an aspect of socio-economic condition in a specific area of Australia. Mean score is 1000 and standard deviation is 100.

response type was contingent upon the question. Three items had a dichotomous choice (*yes/no*). At this stage of the study, the aim was not to collect data, but to evaluate whether an item was necessary for the final instrument. In order to assess participant endorsement, response types varied between a scale of 1(*Very dissatisfied*) to 4 (*Very satisfied*). The intention was to evaluate whether students understood the questions correctly and whether their response choices were not subject to floor or ceiling effects. Finally, items pertaining to frequency were presented with a response scale ranging from 1 (*Almost never*) to 5 (*Most of the time*). The questionnaire also included several open-ended questions such as, "Name up to five important things that contribute to your well-being/ happiness" or "How would you define bullying?". This open-ended approach was taken to grasp the teenager's current perception of their life and identify additional SWB domains, that might have been overlooked (See Appendix A).

Procedure

The participants were recruited from two clubs (peer support, and leadership and achievement) within a Queensland government public high-school. Students were informed of the pilot study's purpose a week in advance, to allow them sufficient time to decide whether to participate in the study. All participants were asked to complete the pilot questionnaire during the club activity time. The instructions of the pilot were delivered by the teacher who supervised the club. Teachers were briefed in advance in regard to the expectations of the task. In addition to completing the questionnaire, participants were expected to provide feedback on the content of the questionnaire, its readability, and the answer choice. They were also invited to note examples of items/topics that they thought should be included in the questionnaire. Any item attracting mostly "no" responses was dropped from the subsequent version of the instrument, as these items were considered irrelevant for the target population. For the younger group, an emphasis was placed on the

ease of understanding the test items, and suggestions to improve readability. Phase one testing allowed for the determination of item interpretability and scale utility as well as identifying themes relevant to adolescent SWB.

Results

No comments were made by students regarding the item readability and meaningful answers were provided, therefore it was assumed that the item comprehension was acceptable. However, the item "*Do you participate in any sports?"* was ambiguous, as students who exercised but were not part of any team or solo sport felt that their activity was not considered. To address this, two distinct questions were generated i.e. "*Do you exercise?"* and "*Do you participate in a team or solo sport?"*

The most frequently cited domains to negatively impact on participants SWB were; *Stress, assignment issues, negative relationships with teacher and/or family, bullying, lack of good food, body issues* and *racism* (refer to *Figure 3*). Some 13 percent of the participants identified as being a victim of racism. *Friends, family, physical activity, food, partaking in diverse activities (music, watching movies, and reading)* and *the sense of belonging to a place* emerged as the most frequently reported domains in the construction of well-being. The next version of the questionnaire developed additional items based on these themes in order to be able to measure these life domains.

The majority of students were willing and able to define bullying in their own words. A semantic analysis of content revealed that most students' definitions identified the intent of hurting another in their descriptions as well as the repetitive aspect of the behaviour. In the sample, 26 (84%) participants reported having been victims of some form of bullying.

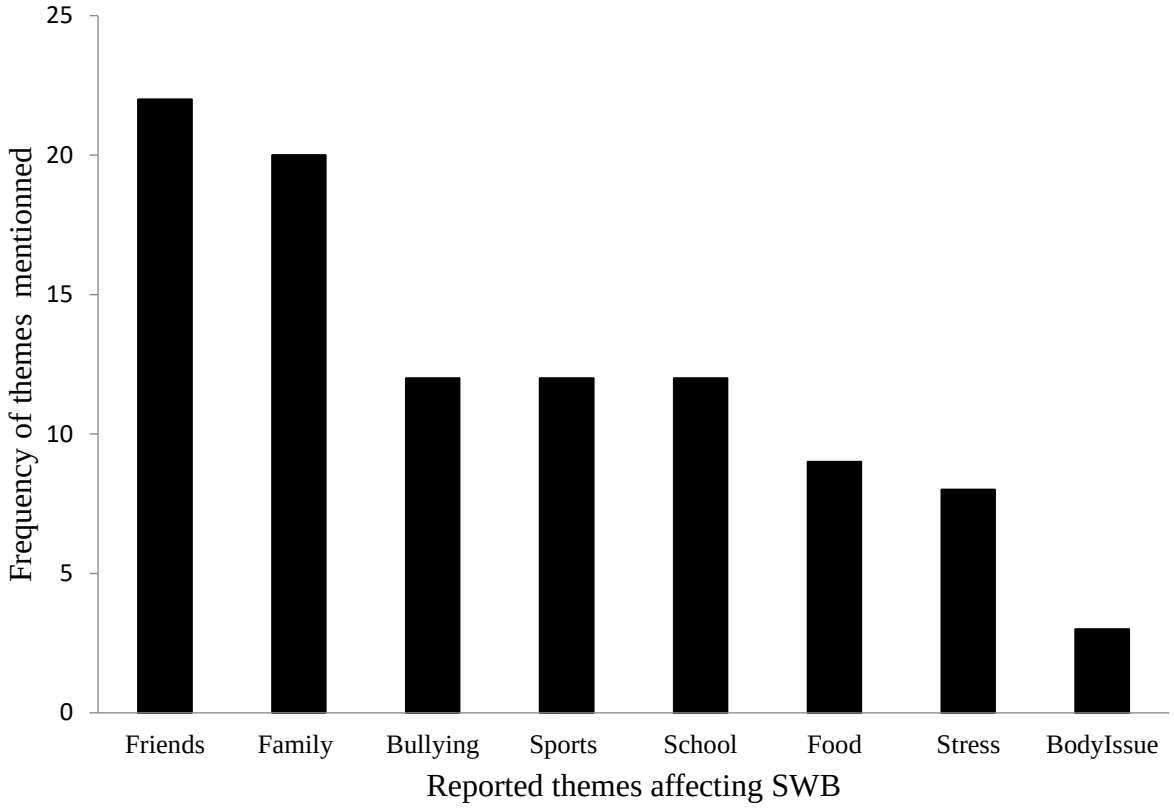

Figure 3. Most frequently domains affecting SWB reported by student participants.
Created by the author, Camille Rault, 2020.

Phase two: Method

Participants

To test the usability and clarity of expression of the items from a student's perspective, an opportunity sample of 22 students from a single class was recruited for the second phase. Students in this class were aged between 14 and 15, with a mean age similar to that of the first pilot sample (refer to Table 17). The male to female ratio was 1:1. This class was selected because its members were in mid-adolescence and represented the target population. No respondent in phase two had previously been exposed to the questionnaire. Table 17 provides a breakdown of participants' nationalities, gender and age.

To ensure appropriate domain coverage and gain insight from educational and well-being experts, the school's well-being team members were also invited to review the questionnaire. Four school staff, two men and two women, agreed to participate. Three participants held a teaching position in the school and the fourth was a school nurse.

Table 17

Breakdown of participants' nationalities, gender and age for the pilot study phase two against statistics of the 2011 government census data regarding Queensland

Descriptive	**Pilot two (*N* = 22)**		**Census data 2011**
	N	percent	percent
Australian	17	77.4	73.7
English	1	4.5	4.9
Asian	1	4.5	2.4
German	2	9.1	0.5
Russian	1	4.5	N/A
Others	1	4.5	6.7
Female	11	50	N/A
Age	*M* = 14.77, *SD* = 0.43		N/A

Created by the author, Camille Rault, 2020.

Material

Pilot Questionnaire Adolescent Well-Being – Revised. The 40-item version of the questionnaire was based on literature and the outcomes of phase one of the pilot study. The items were built on the feedback of the students and covered their reported domains of SWB (e.g. body image, relationship with teachers, exercise, and worry). The instrument was arranged in a similar manner as for that used in phase one, with four overarching categories as presented in

Table 18. The Likert-type response scale descriptions varied according to the question style (See Appendix B).

Table 18

Domains represented in the questionnaire with example items and response type associated.

Domains	Example items	Response type
Self	"I feel satisfied with my body" "I have a positive attitude towards life."	1 "*Almost never*" to 4"*Most of the time*"
Lifestyle	"How often do you participate in any team sports?" "How satisfied are you with your school/work/life balance?"	1 "*Never*" to 6 "*Everyday*" 1 "*Not satisfied*" to 5"*Satisfied*"
Relationship	"Do you do activities with your family together?" "How often do you have a group of friends to sit with at lunch?"	1 "*Never*" to 5 "*Twice a week*" 1 "*Never*" to 5 "*Everyday*"
School environment	"At school, do you ever see evidence of students being laughed at?" "How would you rate your relationship with your teachers?"	1 "*Almost never*" to 4 "*Most of the time*" 1 "*Not positive*" to 5 "*Very positive*"

Created by the author, Camille Rault, 2020.

Procedure

The opportunity sample was sourced from one single class and participants completed the questionnaire during their pastoral care class. Students were invited to participate in the research two weeks prior to the study being conducted. The class setting was not modified for the completion of the questionnaire. Their teacher instructed students to provide as much feedback as possible and to identify any items that did not seem to be clear. The feedback was provided in writing on the questionnaire. Students were also allowed to ask questions to the supervising staff if words or items were not clear. The staff recorded these questions and comments for consideration during later stages of the research.

After collecting the feedback from the students, a meeting was held with the four members of the school's well-being team. The feedback provided by students was reviewed and a discussion was held regarding the appropriateness of the items, their readability and whether additional items should be included. This panel provided final feedback on the instrument.

Results

The data indicated that the majority of items were understood correctly. A small number (4) of participants raised issues concerning the linguistic appropriateness of one of the questions targeting friendship; *How many peers do you consider friends*? Consequently, this item was changed to *How many friends do you have?* Students asked whether participating in social outings targeted family or peer-based gatherings. Similarly, students expressed a concern regarding exercise items. Students said they had to partake in physical education at school and some students stated that they were exercising quite a considerable amount of time outside of school. This distinction was of importance because exercise and sport were raised in the first phase of the pilot study as an aspect of life positively affecting SWB. Some students noted that there were not enough questions regarding school life and stated that they enjoyed school because they were able to see their friends. All these suggestions were considered, and items were refined for the next version of the questionnaire. Some participants indicated that they had never been victims or perpetrators of bullying. However, they had witnessed bullying. This suggested changing the form of the question to better represent a triadic model of bullying, bully-victim-bystander, as it encompasses the effect that bullying can have on witnesses of the phenomenon (Twemlow, Fonagy, & Fonagy, 2004). Finally, students mentioned the lack of worry-related items. Worrying about various aspects of their life seemed prevalent and students felt that there were too few items addressing this.

The expert panel from the well-being team suggested the addition of items pertaining to positive and negative affect, such as, *I feel calm* and *I feel jealous.* According to Classical Test Theory, redundancy of items is desirable for a more comprehensive instrument. They also assisted with the frequency scale, and the discussion led to the use of different frequency scales to measure specific behaviour more accurately. For instance, an item asking students whether they would use social media was measured on a scale ranging from 1 (*never*) to 5 (*everyday*), while an item asking students whether they organise get-togethers with friends was measured on a scale ranging from 1 (*never*) to 5 (*twice a week*). For items pertaining to emotions, participants rated their answer on a 4-point Likert-type response scale (*most of the time, often, rarely, almost never*).

Although changing the response-type increased the cognitive load necessary to complete the questionnaire, this option was adopted to determine a more precise picture of the frequency of behaviours used.

Discussion of phase one and two

The aim of this study was to develop an instrument to measure SWB in adolescents. An initial literature review identified potential domains to cover in designing an instrument to measure SWB, with two indicators of the affect component and eight indicators of life satisfaction for adolescents (Table 1). Subsequently, a two-phase pilot was conducted where student participants suggested items pertaining to feelings experienced in their daily lives, particularly noting aspects of their life that contributed to their well-being. The two-phase pilot assisted with item generation, readability, usability, and content validity of the scale. This process ended with a review and item suggestions by the school well-being team members. At the conclusion of the two-phase pilot testing, a 54-item instrument covering ten domains (two affective domains and eight cognitive domains) was produced.

The most commonly accepted model of SWB encompasses two components, affective and cognitive (Andrews & Withey, 1976; Argyle, 1987; Bradburn, 1969; Diener, 1984; Diener & Larsen, 1984). The literature indicated that emotional well-being, which includes positive and negative affect, is a key component to measuring overall well-being (Crawford & Henry, 2004; Diener, 1984; Gilman & Huebner, 2003). Consequently, it was necessary to include in the scale items pertaining to adolescents' emotions. To reflect this component of SWB, participants were asked to document the emotions they felt most frequently. Given the age of the target population, the emotions elicited were presented in simple terms in the questionnaire (e.g. *calm, worried, tired*). The two-phase pilot testing also aimed to ensure that the second key component of SWB, was adequately addressed. The first phase allowed participants to provide open-ended answers regarding factors that contributed positively and negatively to their life satisfaction (refer to *Figure 3*).

The two most commonly reported factors positively impacting on SWB were *friends* and *family.* This finding was in accordance with past research, which included friends and family as measured domains of life satisfaction (Huebner, 1994; Seligson, Huebner, & Valois, 2003). Items measuring friendship satisfaction were included in the new instrument designed for this research. This finding aligned with published data from Mission Australia (2015), which identified friends as the most valued agents and the first point of call for support for young Australians (2015). In that regard, supportive friendships would be a positive indicator of life satisfaction and a major component of adolescent' lives (Brown, 2011; Parker, Rubin, Earth, Wojslawowics, & Burskirk, 2006; Wentzel, 2014).

Participants also identified conflicts with friends as adversely influencing SWB. This was consistent with research that showed peer-related stressors to be the most commonly reported daily hassles by adolescents (Williams & McGillicuddy-De-Lisi, 1999). In

adolescence, there was a high risk of peer rejection and increased distress concerning impression management (Dawes, 2017). Accordingly, incorporating friendship satisfaction as a domain of life satisfaction would allow the evaluation of the influence of friendship on SWB.

In the pilot study, the domain of family was frequently reported by participants as affecting SWB, mostly as a positive factor. This was also consistent with earlier work as family satisfaction was found to be an important predictor in youth SWB (Brannan et al., 2013; Lawler et al., 2015; Lee & Yoo, 2015; Newland et al., 2015; Oriol et al., 2017). However, family dissatisfaction can also negatively impact SWB. During adolescence, individuals begin to mature and develop independent personal views that may be at odds with parental authority and therefore, these frictions may lead to parent-child conflict and family conflict (Harter, 2012; Steinberg, 2001). Additionally, family dynamics were found to have an impact on Australian adolescents SWB, with 29 percent of children and adolescents living with a sole parent reporting a mental disorder (Lawrence et al., 2016). Consequently, it was important to incorporate a factor measuring family satisfaction, as it allowed the assessment of the adolescent's perception of his/her family support system.

The results of the pilot study also supported prior research in identifying the school environment as a key indicator of SWB (e.g., Aldridge & McChesney, 2018; Ferguson, Kasser, Jahng, 2010; Lawler et al., 2015; Newland et al., 2015; Oriol et al., 2017). Specifically, students reported that the relationship they had with their teachers had a positive impact on their SWB. In contrast, assignment-stress and poor grades were noted as negative influences. This result was consistent with previous research that included *school* in their measure of SWB (Huebner, 1994; Seligson, Huebner, & Valois, 2003). Positive relationships between teachers and adolescents were important for adolescents' adjustment (Al-Yagon &

Margali 2013; Britzman 2012; de Boer et al., 2010) and were linked to higher academic achievements (Allen, Witt, & Wheeless, 2006; Gonzales, Oriol-Granado, 2016; Pianta, Steinberg, & Rollins, 1995). In contrast, as noted by the participants of the pilot study, the school environment can trigger negative feelings, with students reporting a heightened level of stress due to assignments and negative feelings towards poor academic records (Owens et al., 2012; Lauermann et al., 2017). Therefore, the inclusion of a factor evaluating school satisfaction was necessary.

Consistent with prior research, participants identified bullying, including racism, as a key contributing factor to decreased SWB. Bullying has become highly relevant to present day youth, in the cyber domain as well as the real world (Bayer et al., 2018; Erentaite et al., 2012; Smith et al., 2018; Wang et al., 2009, 2011). Research has highlighted the detrimental effect of bullying on SWB (Gobina, et al. 2008; Kerr, et al., 2011; Rigby & Slee, 1993; Thomas et al., 2017) and these negative consequences were shown to be long-lasting (Rigby & Slee, 1993). Despite the general effort from Australian schools to address bullying, these strategies' effectiveness was found to be limited (Rigby, 2017; Rigby & Johnson, 2016). Items pertaining to bullying were therefore included in the measure of SWB.

Adolescents noted that participation in sports and having access to "good food" had an impact on their SWB. These findings aligned with research that established a positive association between physical activity and levels of SWB (Eime, et al., 2013; Fox, 1999; Halliday et al., 2018; Mahoney et al., 2005) and recent work found that having healthy food options at the school canteen was a facilitator of SWB (Halliday et al., 2018). Prior research found participating in physical activity, could be seen as a mean of forming new friendships, developing teamwork, having discipline, keeping busy, managing weight, improving self-image, and achieving higher academic attainments (Bailey, 2006; Eime, et al., 2013; Larson,

2000). Physical activity was also found to be the most practical and time-efficient way of helping adolescent improve emotional well-being (Taylor et al., 2009). A study of adolescents suggested that physical activity led to improved sleep quality and duration (Reverter-Masia, Hernandez-Gonzales, Jove-Deltell, & Vegas-Cassasas, 2017). As previously stated, poor sleep is an issue for adolescents and leads to a number of detrimental outcomes (Barksy et al., 1990; Choquet et al., 1993; Gradisar et al., 2011). Not sleeping enough was identified by Australian adolescents as a barrier to SWB (Halliday et al., 2018). Results from the focus group and the literature supported the inclusion of a domain targeting behaviours related to physical health.

Body image also emerged as an issue influencing SWB among adolescents in this sample. Participants reported that concerns pertaining to their physical appearance negatively impacted SWB. This was consistent with the literature, as body image was found to be an important factor for both males and females (Delfabbro et al., 2011; Smolak, 2012) and reportedly one of the major concerns voiced by youth (Mission Australia, 2015). Participants in the current study noted that the discrepancy between their body ideals and body shape, weight, and overall image constituted a key cause of stress. This finding aligned with previous research (Smolak, 2012; Mission Australia, 2015). An excessive desire for body shape changes can lead to eating disorders (Stice, Presnell, & Spangler, 2002), emotional distress (Johnson & Wardle, 2005) as well as psychological disorders including depression (Hoffmann & Warschburger, 2016; Seigel, 2002). Given the prevalence of body image concerns among adolescents, it was considered important to include items pertaining to this issue.

Participants in the pilot study reported using social media and owning a mobile phone, which supported the popularity of these means for adolescents to stay in contact with their

friends (Chan, 2015; Valkenburg & Peter, 2009). The items in the questionnaire pertaining to adolescent use of social media were retained as they proved to be successful in demonstrating the prevalent use of technology among adolescents. The participants in the study did not raise concerns over their use of technology and social media. There have been conflicting reports regarding the relationship between internet use and SWB. Prior studies have shown that internet use may decrease loneliness and depression, and consequently increase SWB (Kraut et al., 2002; Shaw & Grant, 2002). In contrast, others have argued that internet use was detrimental to SWB by hindering the potential for real-life interaction, which might lead to isolation (Kim, LaRose, & Peng, 2009; Kraut, Patterson, & Lundmark, 1998). The consequences of technology usage are particularly important given between 70 to 80 percent of Australian adolescents exceed the recommended daily limit of two-hours recreational screen time (Hardy, 2013). Despite limited consensus in the current literature on the influence of internet use on SWB, it is clear that internet use, and in particular social media use, should be considered when developing a measure of SWB in adolescent populations. Accordingly, items measuring adolescents' use of technology were included in the questionnaire.

Participants in both phases of the pilot study reported worry, particularly relating to school grades, as a relevant theme of their SWB. This is consistent with previous research that showed that children and adolescents worry about their academic performance (Lauermann, Eccles, & Pekrun, 2017, Silverman, La Greca, & Wasserstein, 1995; Tang & Westwood, 2007). Personal health and family-member health, although previously considered to be a major area of worry (Fisher et al., 2016; Silverman et al, 1995; Tang & Westwood, 2007) was not reported by the participants to be a concern. Students expressed fear about future job prospects and lacked confidence in their ability to find a position or choose their future profession. This finding aligned with the outcome of a previous study that showed that about a quarter of sampled adolescents worried about finding and keeping a job

(Silverberg Koemer, Korn, Peltz Dennison, & Witthoft, 2011). This trend has also been found to increase in late adolescence (Silverberg Koemer et al., 2011; Tikkanen, 2016). There are several possible reasons for this finding. Nowadays, adolescents are faced with a new labour market and more complex employment practices (Furlong & Cartmel, 2007; Lawrence et al., 2016). There has been a rise in the educational level of the population in recent decades, which resulted in a devaluation of educational degrees (Aro, 2014) and these may no longer guarantee future employment. The media has made the rates of unemployment a topical issue, which might exacerbate fears relating to job prospects and security.

Personal safety was also identified as a source of concern for the participating students. Previous studies (Lindfors, et al., 2012; Silverman, et al, 1995) documented that adolescents exhibited fears relating to terrorism, crime, violence, and war. The knowledge that adolescents have about the world is greatly influenced by media and online media (Furlong & Cartmel, 2007). Research suggested that adolescents have a negative image for the future of their society (Stellinger & Wintrebret, 2008). These societal issues may increase worry and consequently impact on adolescent SWB. Items pertaining to these different types of worry were included in the scale.

In summary, through an initial review of the literature and the use of a two-phase pilot, a 54-item instrument was created that measured the domains of life and emotional experiences that influence children and adolescents' SWB. The following study administered the questionnaire to a larger sample to further assess the scale usability and to establish construct validity.

Study 1b: Adolescent SWB: construct validity and refinement of a new instrument (Australian Sample)

In Study 1 a, a review of the literature guided a two-phase pilot study that aimed to develop an instrument to measure Subjective Well-Being (SWB) for adolescents. Established model of SWB indicated the importance of measuring affect (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984), and as such items pertaining to positive and negative affect were included in the Comprehensive Adolescent Measure of Well-Being (CAMWB). Based on the feedback provided by the participants of the pilot study, eight life domains were identified, these aligned with prior literature.

The most frequently reported factor influencing adolescent participants SWB was friendships. Previous research supported the importance of friendship for life appraisal in young populations (Oriol, Torres, Miranda, Bilbao, & Ortuzar, 2017). Consistent with prior research, participants frequently reported their family life was influential to their SWB (e.g. Lawler, Newland, Giger, & Roh, 2015; Newland, Lawler, Giger, Roh, Carr, 2015; Oriol et al., 2017). School environment emerged as another important domain influencing SWB. Prior research has found that children and adolescents who reported higher levels of school satisfaction also reported positive outcomes such as higher academic achievements, academic motivation, and positive goal setting (Babakhani, 2014; Phan, 2013; Wang et al., 2014). While aspects of the school environment may be conducive to positive SWB, participants identified bullying within the school environment as a key indicator of poor SWB. Bullying is identified as a source of stress and anxiety for adolescents that can have long-lasting negative effects on SWB (Rigby & Slee, 1993). Participants of the pilot study also suggested that body dissatisfaction may negatively impact their SWB. Mission Australia (2017) stated that body image was a very important issue for young Australians. The majority of participants reported using social media and owning a mobile phone, which aligned with

previous research that found that technology plays a substantial role in the lives of present-day youth (Leep, Li, Barkley, Salehi & Esfahini, 2015). Participants in both phases of the pilot study identified worry as a significant factor that negatively impacted their SWB. This finding supported previous research that showed one-quarter of adolescents worry excessively (Fournier, Freeston, Ladouceur, Dugas, & Guevin, 1996) and that worry increases with age (Lindfors, Solantaus, & Rimpela, 2012; Silverberg Koener, Korn, & Dennison, & Witthoft, 2011 The participating adolescents stated that practising sports had a positive impact on their SWB. This finding supported previous research that found physical health and exercise to be factors associated with SWB (Hoyt, Chase-Lansdale, McDade, & Adam, 2012). Taken together, these ten domains were considered essential for a comprehensive measurement of adolescent SWB and therefore items pertaining to these domains were included in the CAMWB.

The aim of the current study was to investigate the suitability of the items generated after the first two-phases of pilot testing. This was the first use of the CAMWB on a large sample and potential issues with item readability could arise from the testing. This study also sought to test the construct validity of the newly created instrument using quantitative methods. An exploratory factor analysis (EFA) was the most appropriate method to analyse the data collected, as it allowed the exploration of latent variables within a set of items without a predetermined hypothesis. EFA is commonly used for scale development in psychological research (Fabrigar, Wegener, MacCallum, & Strahan, 1999). The purpose of EFA is to identify latent constructs that underlie a set of dependent variables. The current study sought to determine whether the aforementioned domains, would form meaningful factors.

Analytic considerations for exploratory factor analysis

Kaiser's[20] criterion, is often used to identify the upper limit of factorability of a dataset (Kaiser, 1970). It is broadly acknowledged that this criterion is overly liberal and tends to encourage the extraction of too many factors (Braeken & van Assen, 2017). In contrast, Cattell's criterion can be considered to provide a lower bound estimate of the number of factors to extract. Cattell's criterion can be limiting as its reading can be subject to interpretation (Raiche, Walls, Magis, Riopel, & Blais, 2013). Recommendations for EFA using survey data in psychology have argued for Maximum Likelihood (Chambers & Chambers, 2012; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Guadagnoli & Velicer, 1988; Henson & Roberts, 2006). Maximum Likelihood extraction relies on multi-normal distribution. However, this method is robust to slight violation of normality, if skewness is not severe (Joreskog & Sorbom, 1989). This method of extraction allows for the computation of an index of goodness-of-fit, which can guide the retention of factors and indicate the quality of the solution (Fabrigar et al., 1999). Principal Axis Factoring was also considered as the data presented with skewness and this extraction method was found to be robust to such an issue (Fabrigar et al., 1999). The solution space was explored with both orthogonal and oblique rotations. In psychology, variables are likely to be related, if not overlapping, therefore oblique rotation is often the most appropriate (Preacher & MacCallum, 2003). However, given the wide range of factors, it was important to consider both rotations as it was yet unclear whether factors would be correlated. Therefore, oblique solutions were explored using Direct Oblimin (Boyle, 1985, 1989; Costello & Osborne, 2005). This type of rotation allows for factors to be formed while considering factor correlations (Costello & Osborne, 2005; Tabachnick & Fidell, 2013). In the case of the constructs not being related, an orthogonal solution would be chosen as it would maximise the variance between factors.

[20] Kaiser recommended maintaining factors with eigenvalues greater than 1 (Kim & Mueller, 1978).

Varimax was applied to test orthogonal rotations, as it is the most commonly used and the simplest to interpret (Abdi, 2003; Costello & Osborne, 2005). In EFA, the desired outcome is a simple structure where items clearly load strongly onto a single factor. Nonetheless, split loading[21] can occur and it is then the decision of the researcher to retain or drop the item (Costello & Osborne, 2005). Criteria determining the best-fit solution counted (i) the meaningful formation of factors, (ii) the strength of the loading onto the factors, (iii) the communality of extraction, which relates to the information retained for each item when reduced to the factor structure, (iv) the absence of cross-loadings, (v) the loss of items, and (vi) the total amount of variance explained by the factor structure and the criteria of goodness-of-fit.

This study also assessed the internal consistency of the CAMWB using Cronbach's Alpha. Earlier work from Nunnally (1967) advised that a Cronbach alpha around the value of .50 and .60 was sufficient. However, in the revised edition of his manuscript, Nunnally (1978) recommended a value equal or superior to .70 for psychological measures to have acceptable reliability. This second edition is the most commonly referenced and as such has become sacrosanct in the field (Cho & Kim, 2015). However, it has been suggested that these arbitrary values were provided by Nunnally as guidelines for researchers, rather than being the result of empirical research (Churchill & Peter, 1984; Peterson, 1994). The results of a meta-analysis conducted by Peterson (1994) showed that around 75 percent of the research analysed presented with a Cronbach alpha of around .70 (Peterson, 1994), testifying to the influence of Nunally's recommendation. A more recent meta-analysis showed that not only did most instruments met the .70 cut off, they also frequently exceeded .80 (Greco, O'Boyle, Cockburn, & Yuan, 2018). Although this standard appears to have become a "hall pass", the

[21] Split/cross loading refers to an item loading substantially on more than one factor (Kim & Mueller,1978)

issue relating to increasing the alpha level by deleting some items may present a threat to the validity of the scale (Cho & Kim, 2015). The process by which the variety of items is decreased to maximise internal consistency is referred to as item reduction. However, item reduction can contribute to the attenuation paradox (Humpreys, 1956; Loevinger, 1954). An illustration of this paradox could be seen with a scale measuring School Satisfaction that would only include very similar items. Any process of elimination required to increase the Cronbach's alpha could have unwanted consequences in terms of content coverage. It was suggested that in doing so, the Cronbach's value inflated but the breadth of the domain of school satisfaction might not be adequately covered (Boyle, 1991). Some authors have even argued for lower coefficients in order to avoid item redundancy, as item repetition leads to the measurement of a narrow factor (Boyle, 1991; Cortina, 1993). Therefore, high internal consistency was desired but not at the cost of validity.

Construct validity and reliability of the questionnaire were explored by Exploratory Factor Analysis and computation of Cronbach's alpha, respectively. The CAMWB was intended to cover ten domains, Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Use of Technology, Worries, Body Image, and Physical Health. The subscales and the entire CAMWB were expected to have high internal consistency.

Method

Participants

A sample of 1,013 adolescents, 575 (57%) females and 438 (43.2%) males, aged between 10 and 18 (M = 14.70, SD = 1.44) were recruited from a state high-school in South-East Queensland; this was the same high-school from which participants for study 1a was sourced. Twenty-two nationalities were represented in the sample with 654 (65 %) being

Australian. This multi-cultural representation of the sample was substantially higher than the percentage given by the Office of Economics and Statistical research of the Queensland government (20%; Queensland Treasury and Trade, 2011).

Material

The Comprehensive Adolescent Measure of Well-Being (CAMWB; Rault, Unpublished) is a 54-item instrument designed to assess domains of SWB in young individuals aged between 10 and 19. The instrument intended to measure ten domains of SWB (refer to Table 19). These domains emerged from phase 1 and 2 of the pilot study. Eight domains (e.g. family satisfaction, positive emotions, and technology) were included in the questionnaire informed by literature review and later confirmed by the data provided by student participants. A further two domains (e.g. body image and worry) were elicited by student participants during the first and second pilot testing of the instrument. Their propositions aligned with existing literature. Responses were recorded on Likert-type response scales that varied depending on the question type. Items pertaining to satisfaction employed a 4-point scale from *Positive* or *Satisfied* to *Negative* or *Dissatisfied.* In order to obtain more usable data and increase response rates, a 4-point forced choice scale was adopted to force respondents to commit to an answer (Dhar & Simonson, 2003, refer to chapter 3 for a discussion of response choice). Items pertaining to frequency had varying response scales. Considering the gamut of items, which ranged from *Team sport*, to *Jealousy*, to *Use of Facebook* it was concluded that Likert-type responses scales needed to be constructed in a manner that reflected the potential frequency response for each item content (refer to table 1 for an example). As the scale was still in development, it was important to allow for sufficient response options to capture nuances in responses. An additional four demographic questions measuring age, gender, school year level, and nationality were

included. The current study tested the construct validity and reliability of the instrument (See Appendix C).

Table 19

Constructs measured by the CAMWBS, example items and response mode

Domain	**Example item**	**Response Mode (trait/state items)**
Positive emotion	I feel calm I feel happy	1 "*Almost never*" to 4 "*Most of the time*"
Negative emotion	I feel angry I feel tired	1 "*Almost never*" to 4 "*Most of the time*"
Friendship satisfaction	Do you organise get-togethers? Do you have friends to sit with at lunchtime?	1 "*Never*" to 5 "*Twice a week*" 1 "*Never*" to 6 "*Everyday*"
Family satisfaction	How satisfied are you with your relationship with your mother? A large family makes me feel supported	1 "*Not satisfied*" to 4 "*Very satisfied*" 1 "*Disagree*" to 4 "*Agree*"
School satisfaction	I have a good relationship with my teachers How satisfied are you with your subject choices?	1 "*Not positive*" 4 "*Very positive*" 1 "*Not satisfied*" to 4 "*Very satisfied*"
Exposure to bullying	At school do you see evidence of – physical assaults? - students being excluded from their group of friends	1 "*Almost never*" to 4 "*Most of the time*"
Body image	I worry about my weight I am satisfied with my body	1 "*Almost never*" to 4 "*Most of the time*"
Technology use	How often do you use - Snapchat? - Facebook?	1 "*Never*" to 5 "*Everyday*"
Worry	I worry about my grades I worry about having a successful career	1 "*Almost never*" to 4 "*Most of the time*"
Health-Physical activity	I sleep well Do you exercise outside of school?	1 "*Almost never*" to 4 "*Most of the time*" 1 "*Never*" to 5 "*Everyday*"

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Procedure

The research obtained the necessary ethics clearance and was conducted in accordance with the National Health and Medical Research Council (NHMRC) national statement on the ethical conduct of research. In instances where participants had difficulty comprehending the explanatory statement and the informed consent form, teachers were permitted to verbally deliver this information to students. However, teachers were instructed not to assist students with their responses and were asked to advise students to ignore questions they had difficulty understanding. This precaution was taken because it was important that the participants' understanding of the questionnaire was reflected in the responses rather than the comprehension of their adult teachers. Nonetheless, teachers were to record if some questions were attracting difficulty in understanding. Furthermore, at this stage, the questionnaire was still being tested for readability of the item; and therefore, any understanding issues arising from completion needed to be highlighted. Students were told that they could withdraw at any time without penalty. On average, participants took approximately 20 minutes to complete the survey.

Results

Preliminary analysis

Prior to statistical analysis, the data set was checked for data entry errors and missing values. All analyses were carried out using IBM® Statistical Package for Social Science (SPSS) version 25. A missing values analysis was performed and revealed that the dataset contained less than 10 percent missing values and this data was missing at random. Bennett (2001) advised data missing below 10 percent did not constitute an issue for subsequent analyses. Consequently, no imputation was carried out in an effort to conserve raw data. A

series of Shapiro-Wilk's tests[22] were used to assess data normality. The use of this test has been recommended for datasets exceeding 1,000 (Gashemi & Zahediasl, 2012). The assumption of univariate normality was violated as the test yielded significant results, which indicated a significant departure from normality. However, visual inspection of histograms showed that for most variables, data portrayed a normal curve. Items such as "How often do you use Twitter?" and "How often do you participate in any clubs?" presented with significant skewness (critical value of 37 and 10 respectively), however, in consideration of the sample used, the shape of the distribution reflected true scores. These were extreme cases. Another variable such as "I feel calm" was negatively skewed, while the item "I feel fearful" was positively skewed and both of these outcomes were anticipated. It was expected and desirable that in a sample of high school students, the majority of them would report feeling calm *most of the time* and feeling fearful only *sometimes*. Shapiro Wilk's test is known to be highly sensitive to violation of normality and therefore, the significant results can be attributed to sensitivity rather than problematic data in some instances (Shapiro, Wilk, & Chen, 1968). Univariate normality was assessed with visual inspections of histograms and univariate outliers were identified using Box and Whisker's plots. The assumption of multivariate normality was assessed, using Mahalanobis Distance (p = .001), 58 multivariate outliers were identified. The exploratory factor analysis was conducted with and without these cases, the results were found to be substantially different. Accordingly, these 58 outliers were deleted. Visual inspection of the scatterplots indicated that the assumption of linearity was met. All correlations between items fell below .80. Hence, there was no evidence of multicollinearity and singularity (Field, 2009). The Kaiser- Meyer-Olkin (KMO) measure of sampling adequacy value of .89, suggested that the dataset was factorable (Kaiser, 1970). Additionally, a significant Bartlett's test (χ^2 (1653) = 19420.99, p <.001) also indicated that

[22] Shapiro-Wilk's test compares the distribution of a variable against a normal distribution.

the dataset was factorable. However, Tabachnick and Fidell (2013) noted that Bartlett's test is notoriously overly liberal and not recommended when the number of indicators exceeds 5 cases per variable. It is likely to suggest significant factorability of the set even when the net correlations are small [23].

Exploratory Factor Analysis

The Kaiser criterion suggested retaining 15 factors, while Cattell's scree plot indicated four factors as the lower bound estimate. Kaiser's criterion is notorious for over-factoring and a better approach is to limit the upper number of factors to that specified by the theoretical model. The theoretical structure indicated ten domains of interest. Therefore, every solution with factors between four and ten was evaluated. Maximum Likelihood and Principal Axis Factoring extractions were both used to find the best solution. Additionally, reliability was assessed to determine internal consistency of the factors using Cronbach's alpha.

A 7-factor solution using Maximum Likelihood with an oblique rotation was the most interpretable solution. It accounted for 37.30 percent of the variance and had logical interpretability. Cronbach's alpha ranged between .58 and. 89 for the factors, and the overall CAMWB possessed an overall Cronbach's alpha of .84, which was considered satisfactory (Nunnally, 1967). The lower estimates of reliability were less than currently desirable standards, however Spearman (1904) noted that scale reliability increases as a function of scale length and further development may improve scale reliability. Table 20 displays the final solution.

The goodness-of-fit chi-square failed to demonstrate an adequate fit of the data. However, Tabachnick and Fidell (2012) warned that the goodness-of-fit criteria was sensitive

[23] For this reason, Bartlett's test was not reported in the subsequent studies.

to large datasets and relied on the assumption of normal distribution of the data. The result of the goodness-of-fit chi-square was significant with every possible solution and as such, this criterion was only used to give an appreciation of the fit. The item loaded meaningfully onto the factors and the strength of these loadings indicated that the retained items accounted for a substantial amount of variance in the factor. However, the communalities of extraction presented in Table 20 indicated that for a few items a considerable amount of information was lost in the reduction process. The factors extracted aligned with the domains identified during the two-phase pilot study. These were Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions and Worries, Self-Appraisal, and Activities.

Table 20

Final solution of the factor analysis for the CAMWB, with loading, amount of variance per factor and reliability.

	BI	EB	PE	SC	NEW	SA	A	Com.
Satisfied with weight	**.98**	-.02	-.01	.03	.07	.03	.02	.90
Satisfied with body shape	**.97**	-.01	.00	.01	.10	.01	.06	.90
Worry about weight	**-.66**	-.04	.05	.11	.27	-.01	-.04	.65
See students being ignored	-.06	**.79**	.01	.08	.04	-.03	-.04	.68
Students laughed at	.03	**.78**	-.06	-.06	-.01	-.02	.06	.61
See name calling	-.03	**.78**	-.10	-.04	.02	-.08	.03	.59
See students excluded	-.09	**.74**	.03	.12	.06	-.02	-.04	.65
Physical assaults	.05	**.68**	.02	-.04	.03	.08	.13	.49
Racism	.00	**.63**	.00	-.07	-.02	.03	-.04	.40
Compassion	.03	-.01	**.79**	-.05	.00	.00	.05	.66
Content	.09	-.02	**.75**	-.01	-.10	-.08	.01	.71
Empathy	.00	.04	**.67**	.01	.15	.01	-.01	.44
Calm	.10	-.03	**.62**	-.05	-.21	-.02	.05	.57
School/work/life balance	.11	-.15	.26	-.05	-.13	.00	.22	.28
Sleep well	.09	-.08	.26	-.06	-.12	-.04	.22	.25
Have friends to sit with	.01	-.06	.11	.02	-.09	-.09	-.04	.05
Use Snapchat	-.03	-.02	-.02	**.82**	-.01	.02	.06	.68
Use Instagram	-.11	-.05	.01	**.71**	.01	-.06	.18	.58
Use Facebook	.01	.02	-.01	**.54**	.01	-.02	-.12	.30
Social outings with friends	-.05	.04	-.01	**.43**	-.08	-.08	.30	.30
Organise get-togethers	-.06	.02	.08	**.31**	.02	-.03	.28	.20
Part-time work impacting school	-.01	.04	-.09	.26	.12	-.04	-.02	.11
Play instrument	-.01	.03	.08	-.13	.05	-.09	.00	.03
Twitter	.01	-.01	.04	.11	.06	.07	-.05	.02
Worry about grades	-.08	-.01	-.07	.00	**.61**	-.17	.08	.40

Feel worry	-.11	.03	-.04	.02	**.59**	.04	-.22	.59
Worry about career	-.04	.04	-.05	.03	**.54**	-.21	.04	.33
Worry about violence	-.05	.10	.05	-.09	**.47**	.04	.08	.27
Worry about money	-.14	-.02	-.07	.21	**.43**	-.03	-.05	.34
Feel fearful	.01	.09	.07	.01	**.43**	.27	-.08	.36
Worry others see me because of look	-.28	.08	.05	.01	**.43**	.21	.02	.47
Feel jealous	-.07	.11	.09	.12	**.39**	.22	-.06	.35
Feel life crying	-.17	.01	.04	.16	**.36**	.21	-.20	.43
Feel angry	.05	.19	-.08	.12	**.36**	.23	-.08	.37
Feel different because of way I look	.03	.20	.11	.01	.21	.15	.01	.40
Relationship with sibling	.01	.08	.04	.08	-.09	-.03	-.01	.02
Positive attitude towards life	.22	.00	.20	-.02	-.01	**-.61**	.07	.69
I have a number of positive qualities	.27	.04	.17	-.03	.00	**-.60**	.06	.68
I respect myself	.31	.02	.08	.07	-.01	**-.57**	.05	.57
Satisfied with my personality	.45	.07	.11	.02	-.03	**-.46**	-.01	.60
Feel life stranger at school	-.05	.15	-.15	-.03	.21	.29	-.05	.32
I feel understood by friends	.16	-.12	.23	.08	.04	-.27	.00	.27
Relationship with teachers	.05	-.20	.17	-.05	.07	-.25	-.07	.19
Friendship are positive and supportive	.05	-.16	.16	.09	-.02	-.25	-.02	.18
Relationship with mother	.03	-.10	.08	.01	-.01	-.20	.07	.01
Participate in team sports	.07	.06	.01	.08	-.02	.08	**.63**	.41
Exercise at school	.08	-.02	.01	-.07	-.04	.15	**.59**	.37
Exercise outside of school	.04	.07	-.04	.13	.07	-.06	**.56**	.35
Participate in clubs	.08	.04	.03	.09	.02	-.01	**.44**	.23
Go on social outings with family	-.01	.08	.12	-.03	.05	-.04	**.44**	.23
Activities with family	-.03	.08	.14	-.04	-.01	-.09	**.43**	.25
I feel tired	-.08	.09	-.15	.17	.20	.00	-.29	.29
Eat fruit and vegetables	.03	-.05	-.07	.00	.05	-.10	.27	.09
Relationship with father	.08	-.08	.06	-.07	-.05	-.16	.22	.17
Enjoy own company	.00	.08	.04	.01	.03	-.05	-.15	.03
A large family feels supportive	-.04	-.04	.11	.03	.00	-.12	.12	.06
% Variance	15.47	6.20	4.85	3.62	3.39	1.94	2.29	
Eigenvalues	10.17	4.05	2.94	2.62	1.97	1.72	1.64	
Extraction SSL	8.66	3.47	2.71	2.03	1.90	1.09	1.29	
Rotation SSL	5.90	4.80	4.43	2.61	4.83	4.72	3.67	
Cronbach's alpha	.87	.89	.86	.69	.62	.58	.78	

Note. BI = Body Image, EB = Bullying, PE = Positive Emotions, SC = Social Connectedness, NEW = Negative Emotions and Worries, SA = Self-Appraisal, Act = Activities, Com. = Communalities.

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The Body Image factor presented with the highest loadings. This factor measured the extent to which participants were satisfied with their body shape and weight. Two items cross-loaded on the Body Image and Self-appraisal factors: "I respect myself" and "I am satisfied with my personality". These two items presented with higher loadings for the factor Self-Appraisal and therefore were assigned to the latter. However, this statistical observation could reflect the importance of body image in the assessment of self in this age cohort.

Items pertaining to the behaviours of bullying formed a logical structure around an Exposure to Bullying factor with all loading presenting values superior to .60. This factor measured participants' exposure to bullying, without specifying the role of the individual (e.g. bully, victim, or witness). When examining the strength of the loadings, it appeared that bullying could be categorised into (i) verbal bullying and exclusion, with loading presenting with values greater than .70, and (ii) physical assaults and racism, with loadings lower than .70. This finding could reflect the verbal and physical aspect of bullying.

The Positive Emotions factor grouped the four positive emotions items of the scale suitably and measured the degree to which positive emotions were experienced by the participants in their daily lives. Three additional items loaded on the Positive Emotions factor. These were "Are you satisfied with your school/work/life balance?", "Do you sleep well?", "How often do you have a group of friends to sit with at lunch?". Although it was conceptually understandable that these items could reflect the experience of positive emotions, the small loadings (< .30) required further piloting of these items. These three items were not included in the computation of the Cronbach's alpha of the Positive Emotion factor.

Items pertaining to technology use and engagement in social activities loaded onto the Social Connectedness factor. This could have suggested that technological devices were used by adolescents to stay connected with their peers. Three additional items were present on this factor, with very low loadings (< .30): "How often do you use Twitter?", "Do you play an instrument?" and "How much does part-time work impact on your school life?". Inspection of these items found the vast majority of responses were towards the negative end of the scale. Eighty-five percent of the sample had never used Twitter and 69 percent of participants had never played an instrument. Only 39 percent of the participants reported that part-time

work impacted on their school life, with 25 percent selecting *rarely*. Respondents answering *never* to this item (61%) might have indicated that they might have not held a part-time job rather than quantifying the impact of the part-time job on their school life. As such, the loading of these items onto the Social Connectedness factor could be due to an artefact of measurement rather than the reflection of an underlying common latent domain. Taking into consideration this finding and the low endorsement of these items, the need for inclusion of these questions was considered to lack support.

The fifth factor, Negative Feelings and Worries, measured the degree to which participants experienced negative feelings in their daily lives and included the different areas of their life they worried about. The item “How often do you feel different because of the way you look?” presented with a small loading. However, it was retained in the solution as it meaningfully contributed to the factor. Conceptually, negative feelings and worries are considered separate constructs. However, this grouping proved to be robust as the exploration of an 8-factor solution did not change this outcome.

The items related to the evaluation of oneself formed the Self-Appraisal factor and measured participants self-image and attitudes towards life. This factor counted four additional items with low loadings (< .30): “How often do you feel like a stranger?”, “How often do you feel understood by your friends?”, “How would you rate your relationships with teachers?”, “Do you think that your friendship groups are positive and supportive?” and “How would you rate your relationship with your mother?”. It could be concluded that when adolescents evaluated themselves, they could have taken into consideration their social self, which was illustrated in the loadings. However, these items were not retained in the final solution as they were not semantically related to the factor. This result indicated that the scale

needed refinement as relationships with a mother, friends and teachers were essential items for an SWB instrument.

The final factor, Activities, included items pertaining to sports and outings, and measured participants engagement with physical activity and clubs as well as family outings. In addition, this factor counted the most number of additional items with low loadings (<.30): “I feel tired”, “How often do you eat fruits and vegetables?”, “How would you rate your relationship with your father?”, “How often do you enjoy your company?” and “Do you support this statement? A large family makes you feel more supported”. These items were not sufficiently related to the Activities factor, and to maintain simple structure, they were not retained in the final solution.

Discussion

This study investigated the suitability of the items generated after the first two-phases of pilot testing using a large sample of secondary high-school students. Item usability was assessed via satisfactory completion of the questionnaire by the participants, this meant that during testing, participants would not encounter issue answering specific item. During survey completion, no items attracted difficulty in understanding therefore supporting usability. The current study also assessed the latent structure of the questionnaire using an EFA, and the internal consistency of the factors and overall instrument using Cronbach’s alpha.

The questionnaire was designed to cover ten domains, Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Use of Technology, Worries, and Physical Health. Results from the EFA outlined a seven-factor structure, which included Body Image, Exposure of Bullying, Positive Emotions, Social Connectedness, Negative Emotions and Worries, Self-Appraisal, and Activities. Investigation into internal consistency of the CAMWB showed that Cronbach’s

alpha for the subscales ranged between .58 and .89, and the overall internal consistency of the scale was of .84.

In regard to the construct validity of the CAMWB, the body image items presented with high loadings, emphasising the importance of a Body Image factor in an instrument designed to measure adolescents' SWB and supporting the findings of phase one of the pilot study. Participants highlighted body image dissatisfaction as a key contributor to poor SWB. Body image dissatisfaction has been identified as one of the leading causes of concern for young individuals in Australia for the past decade (Mission Australia, 2010, 2017). This is concerning given the well-established relationship between body image dissatisfaction and SWB cited in the literature (eg., Delfabbro, Winefield, Anderson, Hammarstrom, & Winefield, 2011). Body image concerns have previously been reported as having a negative impact on individuals ranging from body dissatisfaction to the development of depressive symptoms and eating disorders (Grogan, 2016; McCreary, 2012; Solomon-Krakus et al., 2017). In contrast to early views, it appears body image dissatisfaction is not a problem unique to females. Both males and females experience concerns over their body shape (Hoffmann & Warschburger, 2016; Smolak, 2012) with prior research indicating that a majority of young individuals report wanting to change their body shape (Dohnt & Tiggermann, 2005; Grogan, 2016; Smolak, 2012). It was interesting to note that items relating to internal quality "I feel I respect myself" and "I feel satisfied with my personality" cross-loaded onto this factor. Although their loadings were higher for Self-Appraisal, this finding could be indicative of the importance of body image in relation to the evaluation of self. Body image satisfaction has been identified as an important determinant for self-esteem in young populations in both Australia and France (Fouchard & Courtinat-Camps, 2013; Ninot, Delignieres, & Fortes, 2000; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006;

Tiggemann, 2005). It was therefore pertinent to incorporate body image as part of an instrument to measure SWB for adolescents.

Items pertaining to bullying presented strong loadings to form the Exposure to Bullying factor. Participants in the pilot study identified bullying as a key factor that negatively impacted their SWB. The literature contained a substantial amount of evidence that highlighted the prevalence of bullying in young populations (Cross et al., 2009; Espelage et al., 2000; Rigby, 2000; Thomas et al., 2017) and a strong association between bullying and SWB in adolescent populations has been well-documented (Gobina, Zaborskis, Pudule, Kalnins, & Villerusa, 2008; Kerr, Valois, Huebner, & Drane, 2011). Prior research has provided evidence to demonstrate a long-lasting relationship between bullying and reported levels of stress and anxiety (Rigby & Slee, 1993; Rigby, 2000; Thomas et al., 2017). The Exposure to Bullying factor in the CAMWB allowed an individual's exposure to bullying to be measured, while also allowing the impact of bullying on SWB to be assessed.

The third factor, Positive Emotions, represented part of the affective domain of SWB. Positive emotions were measured by frequency reports on four positive emotions items: compassion, content, empathy, and calm. Three additional items, *balanced lifestyle*, *sleep* and *friends to sit with for lunch*, also loaded on this factor but they contributed less than 10 percent of variance to the factor solution. Semantic reasoning showed that these items could be conceptually related to the experience of positive emotions. Prior research has reported that having a balanced lifestyle was associated with positive emotions (Diener & Seligman, 2002; Matuska & Christiansen, 2008). Additionally, sleep quality has also been associated with SWB (Diener, 1984; Pilcher, Ginter & Sadowsky, 1997). Research has reported a correlation between sleep disturbances including insomnia and depressive symptoms (Mayers, Gabrau, Campbell, & Baldwin, 2009; Tsuno, Besset, & Ricthie, 2005). Further, the item pertaining to lunch with friends might have been the reflection of social inclusion, and

reports of feeling valued as part of a friendship group have been associated with beneficial outcomes such as academic achievement and motivation (Nelson & DeBaker, 2008). On a theoretical level, these items could be included in this factor as they pertained to domains linked to Self-Appraisal. However, given that their weights were low, this structure needed to be tested a second time before being included or before rewording or exclusion of these items was actioned.

The fourth factor measured Social Connectedness and included five items, three of which pertained to the use of social media while the remaining two addressed the real-life experiences of socialisation. The presence of technological tools (e.g. mobile phones, tablets, computers, video games) surrounding adolescents and young people is important (Foerster & Roosli, 2017; Leep et al., 2015; Willemse, Waller & Suss, 2014). An Australian Government report (2007) stated that nine out of ten families in Australia had internet access and that children aged between eight and 17 years old spent, on average, 1.25 hours online daily. Additionally, 90 percent of 17-year-old Australians owned a mobile phone. In 2013, government statistics showed that this trend had reached a younger age cohort with 89 percent of adolescents between 14 and 17 years owning a mobile phone, while internet access remained the same[24]. Furthermore, with the proliferation of mobile phones and diverse applications for communication, social networking has become a predominant way to create and maintain relationships among youth (Chan, 2015; Valkenburg & Peter, 2007). Valkenburg and Peter suggested that the time spent on social media was positively correlated with the time spent with existing friends. The Social Connectedness factor covered the use of technology as well as partaking in social gatherings and therefore supported this idea. Valkenburg and Peter (2009) suggested technology use allowed adolescents to self-disclose

[24] French data were comparable with 67.5% of the 11-20 years old reporting frequent usage of multiple media simultaneously and mobile phone ownership have become the norm for teenagers (Assouline, 2008; Barre, 2017).

on their own terms and consequently had a positive impact on student SWB. Ling (2004) posited that mobile phone communication was an extension of in-person communication, and hence contributed to perceived social support. The advancement of technology changed the way children and adolescents spend their time together and how they communicated with one another. Given the significant role of communication technology to adolescents' social interactions, the inclusion of a domain that measured social connectedness would ideally include items pertaining to the use of social media and mobile phone.

The fifth factor grouped together items reflecting Negative Emotions and Worries. Although this grouping was conceptually acceptable, it was not initially intended. Negative emotions reflect the affective component of SWB, while worries are more aligned with cognitive aspects of SWB (Laugesen, Dugas, & Buckowski, 2003). Negative emotions and worries have both been associated with lower levels of SWB (Pekrun, 1992; Stone et al., 2001). It was suggested individuals experiencing high levels of worry would also experience heightened negative emotions. Worries were included in the questionnaire upon requests from the participants in the pilot phases of the study. Consistent with prior research, the items with higher loadings on this factor related to academic performances. Academic-related worry was shown to be one of the highest causes of worry in adolescents (Fisher, Keogh, & Eccleston, 2017; Lauermann, Eccles, & Pekrun, 2017, Silverman, La Greca, & Wasserstein, 1995; Tang & Westwood, 2007; Tikkanen, 2016) and this was supported by participants' responses during the two-phase pilot study. Further testing was necessary to confirm whether this factor remained aggregated or whether the items would split into two separate constructs.

Items pertaining to Self-Appraisal made up the sixth factor. They measured aspects of personality, positive attitudes, and self-respect. This result was supported by prior research that found a positive cognitive evaluation of oneself was predictive of SWB (Diener &

Diener, 1995; Kim, Schimmack, Cheng, Webster, & Spectre, 2015). Self-esteem was closely related to self-appraisal and prior studies found high self-esteem to be strongly associated with SWB (Larsen, 2017). In addition, items targeting relationships (e.g. with teachers, mother, and friends) also loaded onto this factor. Although their weights were not sufficient for them to be included in the final solution of the scale, this result could be indicative of the importance of the social self and the evaluation of social interactions in individuals' appraisal of themselves.

The last factor brought together items relating to physical and social activities, and was labelled Activities. It was widely noted that a variety of social and physical activities served as a buffer to poor mental health and enhance SWB (Eime, Young, Harvey, Charity, & Payne, 2013; Gilman, 2001). Researchers (Eime et al., 2013; Gilman, 2001; Mahoney, Larson, & Eccles, 2005; Park 2004) continue to contribute to a growing literature base that suggested both social relationships and physical activity have beneficial effects across several mental health outcomes. Individuals who engage in regular physical activity display more desirable health outcomes, including better general and health-related quality of life, better mood states, and increased SWB (Eime et al., 2013; Mahoney et al., 2005). Furthermore, structured activities have been found to increase adolescent networks and prevent engagement in risky behaviours (Darling, 2015; Oosterhoff, Kaplow, Wray-Lake, & Gallagher, 2017). Consequently, the inclusion of a factor pertaining to the participation in social and physical activities was considered necessary.

Limitations

Although the present solution tapped into several factors associated with adolescent SWB. Two of the major areas of life satisfaction documented in the literature were not represented. These were family satisfaction and school satisfaction. The items pertaining to

family (i.e. “How would you rate your relationship with your mother?”, “How would you rate your relationship with your father?”, “How would you rate your relationship with your siblings?” and “Do you support this statement? A large family makes you feel more supported”) did not load on any of the factors meaningfully, nor did they group together. Family is considered an important indicator of SWB for adolescents (Brannan et al., 2013; Oriol et al., 2017). Parental warmth was identified as a strong predictor of social and emotional well-being (Kim-Cohen, Moffitt, Caspi, & Taylor, 2004). Positive parenting and affectionate relationships with siblings acted as a buffer for children, even in the face of stressful life events (Gass, Jenkins, & Dunn, 2007). Garmezy (1985) was the first to recognise that these positive relationships, intra-familial and outside the family nucleus, were instrumental in building resilience for children. Additionally, young Australians reported that they sought advice and support from their families they faced challenges, indicating that families were an important aspect of adolescents’ lives (Mission Australia, 2015). Consequently, more investigations were necessary.

Similarly, school satisfaction items (e.g. “How much does part-time work impact on your school life?”, “Are you satisfied with your school/work/life balance?” and “How would you rate your relationship with teachers?”) did not form a factor relating to school satisfaction. However, school is a key component of adolescents’ lives (Oriol et al., 2017; Wentzel, 2010) and is considered at the forefront of social development. School is where children learn rules and experience peer interaction (Prati, Cicognani, & Albanesi, 2017; Wang et al., 2014; Wentzel, 2010). Positive school satisfaction was associated with better academic achievements (Wang et al., 2014) and satisfaction with peer interactions (Hallinan, Kubitschek, & Liu, 2009). School satisfaction is a key indicator of SWB for school-aged children and it was important to include a means to comprehensively measure it as part of the instrument.

Friendship satisfaction was also not comprehensively illustrated in the scale. Studies found that friendships are one of the strongest predictors of adolescents' SWB (Brannan et al., 2013; Oriol et al., 2017). The items "How often do you feel understood by your friends?", "How often do you have a group of friends to sit with at lunch?", "Do you think that your friendship groups are positive and supportive?" and "How often do you enjoy your company?[25]" were included to measure friendship support. None of these loaded onto the factor labelled Social Connectedness, which appeared to be the closest construct to an assessment of peer interaction in this solution. Given the importance of peers during the adolescent period (Dawes, 2017), it was considered that a factor evaluating peers relationships was warranted.

Family satisfaction, school satisfaction, and friendship satisfaction were important indicators of SWB, with participants of the pilot study citing these three domains as having a positive impact on their SWB. This study did not adequately to produce a solution from the questionnaire that measured comprehensively these three factors, and it was decided that a second testing of the instrument was required prior to changing the items. The next study presents that second testing of the instrument.

[25] Negatively worded item, which could be indicative of participants enjoying their alone time.

Study 1c

Adolescent well-being: construct validity and refinement of a new instrument

Study 1a reviewed the literature to document the wide range of domains relating to Subjective Well-Being (SWB), comprising of affective and cognitive components (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984). Leading to study 1a, which used open-ended questions to gather information from adolescents on what was considered relevant for their SWB. This method was adopted to create an instrument that would comprehensively measure of adolescent well-being. Data collected from the participants of the pilot study confirmed current knowledge of the literature. Items were generated on this basis and were pilot tested for interpretability and usability. Study 1b tested the construct validity of the instrument on a large sample (N = 1,013) to further assess the effectiveness of the items and to investigate the latent factor structure of the questionnaire. Results from the Exploratory Factor analysis (EFA) only partially supported construct validity. The factors that emerged were aligned with past literature and were relevant for a measure of adolescents' SWB. However, three of the most contributing factors to adolescent SWB were not adequately represented in the questionnaire, namely friendship, family and school satisfaction. The items intended to measure these domains either grouped with other factors or simply did not load meaningfully on the final solution. Prior to rewording or deleting items, the instrument was submitted to another sample to investigate whether the factor structure found in study 1 b could be sample-dependent.

The current study aimed to assess the construct validity the internal consistency of the instrument. Similar to study 1 b, it was expected the CAMWB would cover ten domains, Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Use of Technology, Worries, Body Image, and Physical

Health. The subscales and the entire CAMWB were expected to have high internal consistency.

Method

Participants

A sample of 1,092 students (607 females, 55.6%; 485 males, 44.4%) aged 10 to 18 years old (M = 14.71, SD = 1.45) was sourced, from the same high-school that provided participants for study 1 a and 1 b. More than 15 nationalities were represented in the sample with 677 (62%) being Australian. This multi-cultural representation of the sample was higher than the percentage given by the Office of Economics and Statistical research of the Queensland government (20%; Queensland Treasury and Trade, 2011).

Material

The Comprehensive Adolescent Measure of Well-Being (CAMWB; Rault, Unpublished) is a 54 -item instrument designed to assess domains of SWB in young individuals aged between 10 and 19. The instrument intended to measure ten domains of SWB. These domains emerged from phase 1 and 2 of the pilot study. Eight domains (e.g. family satisfaction, positive emotions, and technology) were included in the questionnaire informed by literature review and later confirmed by the data provided by student participants. A further two domains (e.g. body image and worry) were elicited by student participants during the first and second pilot testing of the instrument. Responses were recorded on Likert-type response scales that varied depending on the question type. With items pertaining to satisfaction, the scales used were on a 4-point index from *Positive* or *Satisfied* to *Negative* or *Dissatisfied.* In order to obtain more usable data and increase response rates, a 4-point forced choice scale was adopted to force respondents to commit to an answer (Dhar & Simonson, 2003). With items pertaining to frequency of either an activity

performed "*Team sport*" or the experience of a feeling "*Jealousy*", several types of items were chosen to match as closely as possible the potential frequency of each item content (refer to the table above for example). Indeed, the instrument was still at a stage of design to allow for enough answer choice to facilitate the capture of subtleties A set of additional four demographic questions measuring the age, gender, school year level, and nationality were included. This section addresses the testing of construct validity and reliability of the instrument.

Procedure

The research obtained the necessary ethics clearance and was conducted in accordance with the National Health and Medical Research Council (NHMRC) national statement on the ethical conduct of research. This task was completed during school hours, under the supervision of teachers. Teachers had been instructed to read the explanatory statement and explained the informed consent, if it was necessary. However, teachers were told not to assist the student in their responses. They were also advised to tell the participants to skip questions if they did not understand them. Students were told that they could withdraw from the study at any time without penalty. The survey took approximately 15 minutes.

Results

Preliminary analysis

Prior to running statistical analyses, the data set was checked for data entry errors and missing values. All analyses were then carried out using IBM® Statistical Package for Social Science (SPSS) 25. A missing values analysis was performed and revealed that the dataset contained less than five percent missing values. Schaffer (1999) asserted that such a low rate of missing data was inconsequential. A series of Shapiro-Wilk's tests showed that the

assumption of univariate normality was violated as the test yielded significant results. However, consistent with study 1b, visual inspection of histograms showed that for most variables, the presence of skewness was characteristic of a normal population and in the expected direction. Univariate normality was assessed with visual inspections of histograms and univariate outliers were identified using Box and Whisker's plots. Using Mahalanobis Distance (p = .001), 64 multivariate outliers were identified. The exploratory factor analysis was conducted with and without these cases, the results were not substantially different, therefore these cases were retained.

Visual inspection of the scatterplots suggested that the assumption of linearity was met. The assumption of absence multicollinearity and singularity were respected as there were no inter-item correlations above .80. The dataset presented with a KMO value of .88, which according to guidelines suggested that the dataset was factorable (Kaiser, 1970).

Exploratory Factor Analysis

The process of EFA described in study 1b was also used for this study. According to Cattell's scree plot four factors could be extracted, while the Kaiser criterion indicated the 15 possible factors. The solution space was explored using oblique rotations only, as the pattern of correlations between factors was expected to be similar to Study 1 b. Maximum Likelihood extraction was used considering the normal distribution of the data (Guadagnoli & Velicer, 1988; Henson & Roberts, 2006). An 8-factor solution using a Maximum Likelihood with oblique rotation was the most interpretable solution. It accounted for 42.28 percent of the variance and had logical interpretability. The factors were labelled Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities and Self-Appraisal. The factors were similar to the factors presented in study 1b with the exception of Negative Emotions and Worries, which split into two different factors.

This outcome was more satisfactory as negative emotions and worries are distinct aspects of adolescents' lives. The factor Worries grouped the items measuring the various aspects of life that adolescents expressed concerned about during the focus group in study 1 b.

Cronbach's alpha for the subscales ranged between .69 and .89, which were considered acceptable. The internal consistency of the entire scale was .85. The reliability coefficients reported in the current study were higher than for the solution 1 b. Table 21 displays the final solution.

Table 21

Final solution of the factor analysis for the CAMWB, with loading, amount of variance per factor and reliability.

	BI	EB	PE	SC	NE	W	A	SA	C
Satisfied with my weight	**.95**	-.04	.07	-.01	.12	.01	.01	-.07	.93
Satisfied with my body shape	**.87**	-.04	.04	.05	.15	.01	.07	-.14	.86
About my weight	**-.61**	-.01	-.01	-.11	.07	-.31	-.07	.02	.64
Students being ignored	-.07	**.81**	.01	-.12	.00	.00	-.08	-.06	.70
Name calling	.03	**.81**	-.03	.04	-.11	-.01	-.02	-.02	.60
Students being laughed at	-.02	**.80**	-.07	.02	-.06	-.05	.00	-.06	.63
Students being excluded	-.10	**.75**	.06	-.14	.01	-.03	-.10	.01	.66
Physical assaults	.00	**.68**	.05	.03	.07	.05	.12	.02	.48
Racism	.03	**.65**	.03	.10	.01	.00	-.04	.04	.43
Compassion	.03	.03	**.82**	.02	.10	.06	.02	-.02	.67
Empathy	.03	.05	**.71**	-.06	.19	.01	-.03	.00	.47
Content	.09	-.01	**.70**	.02	.10	.11	.00	-.21	.70
Calm	.11	-.03	**.59**	.06	-.01	.16	.01	-.16	.59
School/work/ life balance	.10	-.08	**.32**	.01	-.13	.04	.06	-.07	.26
Sleep well	.11	-.08	.29	.02	-.13	.06	.10	-.08	.27

A large family [...] supported	-.01	-.09	.23	.03	-.12	-.19	.07	.01	.14
Have a group of friends to sit with at lunch	-.02	-.05	.20	-.04	-.10	.02	-.10	-.13	.12
Relationship with your mother	.08	-.11	.20	-.03	-.17	-.15	.01	-.10	.21
Relationship with your siblings	.00	-.13	.16	-.02	-.08	-.03	-.13	-.13	.13
Satisfied with your subject choices	.07	-.06	.15	.02	-.13	-.02	-.03	-.07	.11
Use Snapchat	-.01	-.04	-.02	**-.86**	.06	.01	.01	-.03	.73
Use Instagram	-.09	-.06	-.05	**-.75**	.03	-.03	.15	-.11	.61
Use Facebook	-.02	-.02	.02	**-.52**	.11	.02	-.12	.01	.28
Social outings with friends	-.03	.09	.10	**-.40**	-.06	.05	.20	-.08	.26
Organise get-togethers	-.05	.04	.17	**-.30**	-.04	-.03	.17	.01	.17
Use Twitter	.02	.04	-.06	-.16	.01	.02	-.08	.11	.06
Part-time work impact school	-.07	.08	-.08	-.15	.12	-.01	.08	.00	.08
Play an instrument	-.04	.00	.01	.07	.06	.02	.01	-.05	.01
Fearful	-.01	.00	.07	-.02	**.68**	-.06	.01	.07	.49
Jealous	-.07	-.01	.08	-.09	**.65**	-.09	-.01	.03	.49
Angry	.01	.14	-.08	-.05	**.57**	-.09	.04	.05	.47
Worried	-.18	-.01	-.02	.01	**.55**	-.29	-.13	-.02	.57
Like crying	-.09	.05	.05	-.17	**.31**	-.17	-.19	.23	.41
I feel different […] the way I look	.08	.18	.08	.01	.23	-.12	.04	.05	.13
Relationship with your father	.10	-.12	.15	.03	-.19	-.06	.12	-.09	.22
I worry about grades	.00	-.04	-.09	-.01	.07	**-.73**	-.01	-.09	.54
I worry about career	-.04	.01	-.10	.00	.01	**-.71**	.00	-.11	.51
I worry about violence	-.03	.13	.08	.10	.13	**-.45**	-.02	.11	.31
I worry about money	-.13	.03	-.08	-.12	.13	**-.41**	-.05	.07	.34
I worry others seeing me differently	-.21	.08	.07	-.03	.20	**-.39**	-.02	.21	.44
Participate in any team sports	.06	.06	-.03	-.08	.00	.05	**.67**	-.07	.49
Exercise at school	.06	-.05	-.04	.05	.01	.00	**.57**	.00	.34

Exercise outside of school	.07	.04	-.03	-.07	-.07	-.14	**.54**	-.07	.36
Participate in any clubs	.05	.06	-.01	-.09	.05	.10	**.53**	-.09	.34
Social outings with family	.00	.08	.20	-.02	-.21	-.13	**.33**	-.02	.27
Activities with your family	.03	.11	.22	.02	-.27	-.13	**.29**	-.01	.28
Tired	-.06	.12	-.16	-.14	.10	-.15	-.23	.04	.25
Enjoy your own company	.03	.09	-.01	-.02	-.05	-.05	-.21	-.06	.06
Eat fruits and vegetables	.03	-.08	.01	-.08	-.16	-.05	.20	-.07	.12
I believe I have a number of positive qualities	.10	.04	.02	.01	.06	.02	.05	**-.84**	.77
I have a positive attitude towards life	.07	-.01	.07	-.02	-.03	-.03	.07	**-.76**	.73
Satisfied with my personality	.29	.08	-.01	.00	-.02	.01	-.03	**-.64**	.61
I respect myself	.21	-.02	-.02	-.02	-.07	-.10	.05	**-.59**	.53
Understood by your friends	.02	-.06	.26	-.07	-.01	-.06	-.04	**-.31**	.27
Feel like a stranger in the school	.04	.11	-.13	.04	.23	-.16	.00	.29	.32
Relationship with your teachers	.02	-.19	.18	.03	-.08	-.08	-.13	-.21	.23
Friendship groups are positive and supportive	.03	-.14	.20	-.08	-.12	-.07	-.12	-.21	.24
% Variance	18.86	7.12	5.53	4.66	3.36	3.24	3.01	2.50	
Eigenvalues	10.94	4.13	3.20	2.71	1.95	1.79	1.75	1.45	
Extraction SSL	9.26	3.42	3.22	2.13	1.89	1.27	1.39	0.98	
Rotation SSL	5.10	5.33	.5.76	2.43	4.74	2.81	2.83	7.06	
Cronbach alpha	.89	.89	.81	.73	.80	.74	.69	.87	

Note. BI = Body Image, EB = Bullying, PE = Positive Emotions, SC = Social Connectedness, NE = Negative Emotions, W = Worries, SA = Self-Appraisal, Act = Activities, Comm. = Communalities.

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Discussion

The current study tested the construct validity of the CAMWB a second time using a large sample of students. The hypothesis that the questionnaire would present with construct

validity covering ten domains, Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Use of Technology, Worries, and Physical Health, was only partially supported. While study 1 b yielded a 7-factor solution, study 1 c presented an 8-factor solution that included a differentiation between Negative Emotions and Worries. The factors found by the EFA were labelled Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities, and Self-Appraisal. This outcome offered the advantage of being able to separately measure adolescents' experiences of negative emotions and worries.

The study also assessed the internal consistency of the subscales and the entire scale. The domains covered by the CAMWB and the overall scale presented with acceptable internal consistency illustrated by a Cronbach's alpha greater than .50 (Nunnally, 1967). Cronbach's alpha for the subscales ranged between .69 and .89, and the overall internal consistency of the scale was of .85.

Nonetheless, this further testing did not yield a satisfactory outcome in regard to Friendship, Family and School Satisfaction, which presented a limitation for the study. The items pertaining to these domains did not load together meaningfully. This outcome suggested two possible courses of action: i) the items needed to be reworded at best and ii) additional items needed to be generated. A more simplistic approach to each domain had to be taken and items such as "Do you support this statement? A large family makes you feel more supported" showed not to produce the intended response range. The next part of the project was to assess the questionnaire in the French sample. It was therefore the appropriate moment to make any changes to the questionnaire. The French pilot study was addressed in the next chapter.

Chapter 5

Study 2: French Pilot Study: Adolescent well-being

Study 1 of this project reviewed the adolescent Subjective Well-Being (SWB) literature and generated items from responses of a group of 53 Australian adolescents. A panel of educators with expertise in well-being was also consulted to develop the Comprehensive Adolescent Measure of Well-Being (CAMWB), an instrument that measured SWB in children and adolescents aged between 10 and 19. The psychometric properties of the CAMWB were tested with two large samples of Australian adolescents. Using a sample of 1,013 adolescents, the first Exploratory Factor Analysis (EFA) yielded a seven-factor solution that moderately mapped the intended model of SWB. Although the factors were relevant to adolescent SWB, important domains including family, friendship, and school satisfaction were not represented (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Ferguson, Kasser, & Jahng, 2010; Kim-Cohen, Moffitt, Caspi, & Taylor, 2004; Oriol, Torres, Miranda, Bilbao & Ortuzar, 2017; Wentzel, 2010). Using a sample of 1,092 adolescents, the second EFA yielded eight-factor, Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities and Self-Appraisal. This outcome was considered an improved representation of the model of SWB, as it differentiated negative emotions from worries, but still presented limitations as it did not include family, friendship, and school satisfaction as domains measured by the questionnaire. It was necessary to modify some aspects of the CAMWB to achieve adequate domain coverage.

The first aim of study 2 was to amend the items of the CAMWB and improve the multidimensionality of the questionnaire. The amendments necessary to achieve domain coverage for the questionnaire were guided by the feedback of a panel of French educational

experts. The second aim of study 2 was to translate the CAMWB to allow cross-cultural comparison in a French setting.

Cross-cultural validation of the CAMWB

Previously presented models of cross-cultural psychology posited that culture is embedded in individuals and influences their perceptions, attitudes and behaviours (Triandis, 1994). Hofstede (p. 13, 1980) defined culture using the terms "collective programming of the mind". In this research, it is recognised that some aspects of an adolescent's development are universal (e.g. importance of friendship, school satisfaction, worries). However, it is argued that the weighting of their influence varies across cultural settings. Using Hofstede's cultural values, France and Australia ranked differently on all cultural indicators by a minimum of 15 points (out of 100) as previously shown in section 6 of chapter one. These discrepancies are likely to influence the way adolescents develop. For instance, it could be suggested that the higher score on power distance in France could be reflected in student-teacher relationships, and therefore be a point of difference between the two countries.

Triandis and Hofstede warned researchers in the field of cross-cultural psychology about the pervasive effects of language. Based on their recommendations, translating an instrument may not be sufficient. The authors suggested researchers must ensure that the meaning of items was culturally appropriate because any word could be evaluated and understood differently depending on the culture (Sperber, 2004). What constitutes "great", "many", "my group" and "avoid disagreement" may hold different meanings and vary across cultures (Fiske, 2002). The interpretation of a term such as "many" can vary greatly depending on the individual's culture and his or her norms of reference; a citizen coming from India or China may consider many as being in the order of the 10,000, while a citizen of Switzerland may hold smaller reference norms and gauge many from 1,000. The CAMWB measured well-being subjectively, therefore a certain amount of subjective variability is

involved in the participants' responses. Although in generating the items of the CAMWB the use of ambiguous language had been avoided, it was important to acknowledge that some items might have been subject to cultural bias. For instance, the item pertaining to today's level of violence might be interpreted by French adolescents as a reference to the recent terrorist attacks and/or in reference to the riots that occurred throughout 2017-2018 due to social reforms. In contrast, adolescents in Australia could interpret this item in reference to violent crimes reported on the news, or with a more international view as their country has not experienced turmoil similar to that experienced in France.

The back-translation model of Brislin (1970) was employed to maximise the content equivalence of the two versions of the CAMWB. The application of this model involved the translation of the newly developed French version of the CAMWB into English, then back into French, and back once again into English. This technique allowed three comparisons to be made and was undertaken for the French and the English version of the instrument. The use of independent bilingual translators was recommended as it allowed for multiple comparisons, and strengthened the equivalence of the questionnaires (Buil, De Chernatony, & Martinez, 2012). Additionally, Beaton, Bombardier, Guillemin, and Ferraz (2000) advised that using experts assisted with the cultural equivalence of items. These recommendations were followed.

Aside from improving domain coverage and addressing cross-culturally equivalence of the CAMWB, the current study submitted the instruments to be used in this project for review to a panel of experts. Establishing the psychometrics of the CAMWB (refer to study 5) involved the use of other scales, namely the Brief Multidimensional Students Life Satisfaction Scale (BMSLSS; Seligson, Huebner, &Valois, 2003), the Personal Well-being Inventory – School Children (PWI-SC; Cumming & Lau, 2005), the Kutcher Adolescent Depression Scale (KADS-6; LeBlanc, Almudevar, Brooks & Kutcher, 2002), and Rosenberg

Self-Esteem Scale (RSES; Rosenberg, 1965). Furthermore, coping behaviours were investigated with the Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987). The BMSLSS and the PWI-SC had not been translated and used in a French sample to date, and therefore this study translated these instruments and reviewed their usability for a French sample. This study assessed the usability of the scales in French, and therefore only a general description of the scales is provided in the material section. For a detailed description of the psychometrics of these scales, refer to study 5. The A-COPE and RSES had been used on French-speaking adolescent populations, and a French version of the KADS-6 was available online. They were also submitted for review to the panel of educational experts to verify their usability in the current context.[26]

Phase one of this study translated the CAMWB as well as the PWI-SC and the BMSLSS from English to French. Phase two reviewed current items, generated new items for the CAMWB and solicited feedback from experts regarding the usability of the other scales for French children and adolescents. Phase three back-translated the revised version of the CAMWB, and the two other scales. Phase four pilot tested the CAMWB with a sample of young students.

Phase one: Translation

Method

Participants

Two women and two men aged between 25 and 52 (M = 37.75, SD = 12.45) were recruited for the translation of the scales[27]. Two of the individuals were French citizens living in Australia and were proficient in the English language (International English Language

[26] The RSES has been used on several French samples and consequently the panel of experts did not review it.

[27] Due to restricted budget, the services of professional translators were not sought.

Testing System (IELTS) band score of 7[28]. Another individual was a bilingual Australian, and the fourth translator was a French bilingual living in France. These two individuals had never undertaken the IELTS. However, their fluency in both languages was regarded as proficient.

Materials

This section presents the instruments used during this phase of the pilot study, the CAMWB, the BMSLSS, and the PWI-SC.

Comprehensive Adolescent Measure of Well-Being - AU (CAMWB; Rault, Unpublished).

The 54-item instrument was designed to assess SWB in children and adolescents between 10 and 19 years of age in the domains of Body Image, Exposure to Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities, and Self-Appraisal. An additional four demographic questions measuring the age, gender, school year level, and nationality were included. Participants were asked to select their answers on different Likert-type response scales. Refer to Table 22 for response ranges and example items. Items were generated based on prior literature and data collected from open-ended questionnaires conducted in Australia. The CAMWB can be completed within 15 minutes. Construct validity of the questionnaire was moderate as only eight out of the intended ten factors emerged from the factor analysis. Cronbach alpha for the entire instrument was .85 and ranged between .69 and .89 for individual factors.

[28] The IELTS test measures four communication skills; writing, reading, speaking and listening, with scores ranging from 0 to 9, with the higher numbers representing greater mastery of the language. A band score of 7 constitutes good use of the language, and the four translators were therefore considered to have appropriate proficiency in both languages to complete the required translation tasks.

Table 22

Constructs measured by the CAMWB, example items, and response mode

Domain	**Example item**
Body image	I worry about my weight[a]
	I am satisfied with my body shape[a]
Exposure to bullying	At school do you see evidence of – physical assaults?[a]
	- students being excluded from their group of friends[a]
Positive emotions	I feel calm[a]
	I feel happy[a]
Social connectedness	Do you organise get-togethers?[b]
	Do you use Snapchat?[c]
Negative emotions	I feel angry[a]
	I feel tired[a]
Worry	I worry about my grades[a]
	I worry about having a successful career[a]
Activities	Do you exercise outside of school?[a]
	Do you participate in a team sport?[c]
Self-appraisal	I respect myself[a]
	I am satisfied with my personality[a]

Note. [a] denotes 1 *Almost never* to *4 Most of the time*; [b] denotes 1 *Never* to 5 *Twice a week;* [c] denotes 1 *Never* to 6 *Everyday*.
Created by the author, Camille Rault, 2020.

Brief Multidimensional Students Life Satisfaction Scale (BMSLSS; Seligson, Huebner, &Valois, 2003).

This five-item self-report measures life satisfaction across five domains of life, namely Family, Friend, School, Oneself, and Living Environment. The instrument contributed to the literature by providing a brief version of the 40-item Multidimensional Students Life Satisfaction Scale (MSLSS; Huebner, 1994). Participants' responses are

recorded on the *Terrible* (1) – *Delighted* (7) scale (Andrews & Withey, 1976) for items such as "I would describe my satisfaction with my friendships as". Items are summed to form a total score of general life satisfaction, with higher scores denoting higher satisfaction. The BMLSS can be completed in five minutes. For a complete review of the instrument, refer to study 5.

Personnel Well-Being Index- School Children (PWI-SC; Cumming & Lau, 2005).

This seven-item instrument is a parallel form of the PWI-Adult measuring well-being across seven domains of life, namely, Standard of Living, Personal Health, Achievements in Life, Personal Relationships, Personal Safety, Feeling part of the Community, and Future Security. Participants are asked to rate their level of happiness on a scale ranging from 0 *Very sad* to 10 *Very happy*. For ease of interpretation and comparison with other scales, the PWI-SC raw scores are converted into percentages of scale maximum. The scores can therefore be interpreted on a scale from 0 to 100, with higher scores indicating higher levels of well-being. All items are positively worded, and the instruction manual does not prescribe a time limit to complete the questionnaire. For a thorough review of the instrument, refer to study 5.

Procedure

This translation study was conducted in accordance with section 4.8 (People in other countries) of the National Statement on Ethical Conduct in Human Research (2007) and the Inspection Académique du Var consented to their schools being surveyed subject to approval of the principals. An opportunity sample of four bilingual individuals was recruited because of their level of expertise in both languages. They were informed about the target population for the instrument. Participants were instructed to translate the questionnaires from English to French with as few personal additions as possible and with the use of simple language.

Results

The initial translation was found to be problematic for some items; the translated French items were not close enough to the original English items without substantial addition of words or phrases. Additionally, the item translations varied substantially between interpreters. For instance, the item “Do you partake in activities with your family?” translated poorly into French and also lacked clarity in English. The translators unanimously agreed that the item “I enjoy spending time with my family” “J’aime passer du temps avec ma famille” was better suited and clearer in both languages. The item “Do you think that your friendship groups are positive and supportive?” did not read well into French. “Est-ce que tu penses que ton groupe d’amis est positif et t’offres du support ?” was not compatible with French colloquial language. As such, translators suggested “Te sens-tu supporter par ton groupe d’amis?”, “Penses-tu que ton groupe d’amis t’apporte de la positivité?”, “Le support de mes amis et leur positivité me met en confiance”, which digressed too much from the original item. “I am part of a group of friends” was suggested as a replacement; this item conserved the essence of the meaning of the one previously used and therefore was submitted for revision to the panel of experts.

The translation of the item “How often do you feel like a stranger?” was also problematic, as the closest French translation was “Te consideres-tu souvent comme un étranger?”. In French, *étranger* can have three meanings: (i) it can be used to refer to someone unknown (a pedestrian on the street), (ii) it can be used to refer to a foreigner, (iii) it can be used to refer to a feeling. The latter option is the closest interpretation of the English item. However, for most adolescents étranger would be interpreted as foreigner. This would be problematic as there is some degree of cultural sensitivity around this wording, and young people could mistake it as derogatory. This item did not load on the previous solutions of the instrument and was therefore excluded from the questionnaire.

The translation of the PWI-SC was found to be satisfactory and adapted to the French language. Conversely, the BMLSS posed a concern, as the wording of the items did not fit in French conversational language. It was decided to use an alternate form of the BMLSS. The BMLSS- Peabody Treatment Progress Battery version (BMSLSS-PTPB, Bickman et al., 2010) was chosen due to the simplicity of the items in English and their ease of translation into French. In designing the BMSLSS-PTPB, the authors aimed to simplify the language used in the questionnaire (Bickman et al., 2010). This approach was found to be successful as the translation of the BMSLSS-PTPB was straightforward.

Phase two: Expert panel

Method

Participants

A sample of eight (two males and six females) comprised five teachers, one school principal and two teaching-assistants aged between 26 and 56 (M = 37.83, SD = 11.77) reviewed the items and generated new questions. All participants had worked in the French education system for a minimum of four years and were experts in their understanding of child vocabulary and children's experiences. All participants were recruited from the same school in Toulon, France. The recruitment school had many children who were from families with very low SES and where French was not the only spoken language at home.

Materials

This section presents the instruments used during this phase of the pilot study, the CAMWB, the BMSLSS, the PWI-SC, the KADS-5 and the A-COPE.

Comprehensive Adolescent Measure of Well-Being- French (CAMWB-FR: Rault, Unpublished).

The translated 54-item instrument assessed SWB in school-aged children and adolescents in the domains of Body Image, Experience of Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Activities, and Self-Appraisal. An additional four demographic questions measuring the age, gender, school year level, and nationality were included. Participants were asked to select their answers on different Likert-type response scales.

BMSLSS- Peabody Treatment Progress Battery version (BMSLSS-PTPB, Bickman et al., 2010)

The translated version of the BMSLSS-PTPB includes six items measuring SWB on Family, Friend, School, Oneself, Living Environment, and Overall Life. This alternate form of the BMSLSS contains more concise language than the BMSLSS (Bickman et al., 2010). Participants were asked to rate their degree of satisfaction from 1 *very unsatisfied* to 5 *very satisfied* on items such as "Are you satisfied with your friendships?". The BMSLSS-PTPB can be completed in five minutes. Items were averaged out to obtain the total score, where a high score indicated higher satisfaction with life.

Personnel Well-Being Index- School Children (PWI-SC; Cumming & Lau, 2005).

As previously described

Kutcher Adolescent Depression Scale- six items (KADS-6; LeBlanc, Almudevar, Brooks & Kutcher, 2002).

This six-item self-report was designed by paediatricians and adolescent mental health specialists to identify and monitor depression in adolescents (LeBlanc, Almudevar, Brooks, & Kutcher, 2002; Quintao, Davod, Gusmao, & Kutcher, 2015). Participants were asked to

rate their answers on items pertaining to negative feelings experienced over the past week on a four-point Likert-type scale ranging from 0 *Hardly Ever* to 3 *Much of the time.* All items expressed negative emotional valence and an example from the KADS-6 was "Feeling worthless, hopeless, letting people down, not being a good person". Items were summed together to obtain a total score, with higher scores indicating symptoms of depression. The KADS-6 can be completed in five minutes. For a complete review of the instrument, refer to study 5.

Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987).

This 54-item self-report measures coping strategies used by adolescents. The coping strategies are classified into 12 coping strategies that form the following subscales: Ventilating Feelings, Seeking Diversions, Developing Self-Reliance and Optimism, Developing Social Support, Solving Family Problems, Avoiding Problems, Seeking Spirituality, Investing in Close Friends, Seeking Professional Support, Engaging in Demanding Activity, Being Humorous, and Relaxing. Participants are asked to record their answers on a scale ranging from 1 *Never* to 5 *Most of the time* on items such as "I read". The authors of the instrument advised that nine of the items were reverse coded as they indicated undesirable coping behaviours. Higher scores on the subscales indicated higher use of specific coping behaviour. The A-COPE can be completed in 15 minutes. For a complete review of the instrument, refer to study 5.

Procedure

The panel of experts provided feedback on item usability and the response mode for French adolescents in a group setting at a French school site. The revision of the questionnaire session was conducted by the bilingual researcher. The instrument critique session ran for approximatively 60 minutes. The panel was instructed to critically assess the

clarity of the items. Additionally, the panel was asked to identify the different domains targeted by the questionnaire and evaluate whether some domains needed additional questions. The panel was encouraged to generate as many additional items as possible, then a process of item selection by vote took place. Further, the panel was asked to review the BMSLSS-PTPB, PWI-SC, KADS-6, and the A-COPE for suitability in a French sample of children and adolescents.

Results

The panel explained that in France, it was not socially acceptable to ask individuals their nationality as this was a sensitive topic, particularly given recent terrorist attacks, that tended to create a divide rather than unify individuals. Similarly, the item relating to racism was also found to be too sensitive. In consideration of the current political and social climate in France, these items were removed.

The two items pertaining to part-time jobs (i.e. “How much does your part-time job impact on your school life/ results?” and “How satisfied are you with your school-work-life balance?”) were found to be irrelevant in a French context. Laws surrounding employment for children under 18 are very strict and prevent adolescents from engaging in paid employment during the schooling period.

Participants suggested the item “I worry about having a successful career” and the items referring to positive affect “compassion” and “empathy” would be problematic. Although these items translated well in the French language, the use of these words is not frequent, especially among young people. As previously stated, the experts work in a school with children whose parents infrequently speak French. As such, their lexical understanding was given significant consideration. “I worry about getting a job” replaced the career item.

The positive items were substituted by “I feel loved”, which was deemed an important aspect to consider for young individuals.

A review of the CAMWB also suggested that some items were redundant. Participants were concerned about the length of the questionnaire and suggested for the deletion of some items. Instead of asking participants whether they used Snapchat, Instagram, Facebook and Twitter, it was decided to create an item asking whether participants used social media. In a similar manner, the items referring to practising a sport and exercising at school or outside of school were condensed into one single item “I exercise”. This condensation process also took place for the items pertaining to the behaviours of bullying. Three items were created reflecting the three main behaviours of bullying (i.e. being laughed at or insulted, being excluded or ignored, and being a victim of violence). Although, two of these three newly generated items were double-barrelled, the essence of the items was the same.

The domain of physical activity-health required additional items, as the deletion of items from the previous version of the questionnaire left this domain with only two items. Therefore, “I get sick” and “I feel healthy” were generated. The experts also suggested “I eat healthy food” considered a wider range of healthy options than just “I eat fruit and vegetables”. This item did not load onto the previous solutions therefore it was modified to comply with suggestions.

In order to better tap into the domain of school satisfaction and negative emotions, several items were generated. Concerning school satisfaction, seven items were added. These were “I feel understood by my teachers”, “I enjoy learning”, “I enjoy coming to school”, “I feel satisfied with my subject choices”, “I skip school” “I feel safe at school”, and “I receive the support that I need at school”. The items were representative of the sense of community

that can be fostered through the schooling system. Two items were added to the negative emotions domain, “I feel worried” and “I feel sad”. The changes made to the CAMWB were expected to cover the domains of Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction[29], Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. The refined version of the questionnaire counted 46 items.

Regarding the response mode, the unanimous conclusion was that the use of inconsistent response modes (scale lengths) was increasing the cognitive load necessary to complete the CAMWB. Adopting one type of Likert-type response scale throughout the entire instrument was suggested. All items were adjusted to fit a 6-point Likert-type response scale ranging from (1) *Never* to (6) *All the time*. Even numbered scales encourage respondents to commit to endorsement or dis-endorsement of the statement as they lack a discrete midpoint (Alreck & Settle, 1985; Krosnick et al., 1996). These avoid a response bias to a non-committal response. Furthermore, Garland (1991) commented that removing a midpoint decreased socially desirable responses.

The use of the BMSLSS-PTPB, the PWI-SC, and the A-COPE was found to be appropriate for French children and adolescents. The wording of the items was straightforward, and the response types were identified as easy to use for the target population. The last item of the KADS-6 pertaining to suicide and suicidal ideation was considered too high-risk for the population and could trigger negative responses to the students. The current project was not on depression or suicide therefore this item was not indispensable and was removed from the test battery.

[29] The name Peer Satisfaction was substituted to Friendship Satisfaction to facilitate the use of acronym for the subscales.

Phase three: Back translation

Method

Participants

Three women and three men aged between 21 and 59 (M = 40.17, SD = 17.87) were recruited for the back translation of the questionnaire. Two individuals were French bilingual citizens living in Australia, each with IELTS scores above 8 (a band score of 8 considered to represent a very good use of the language). The other two individuals were French bilingual citizens living in France, each with IELTS scores of 7. The latter two individuals were American citizens, possessing similar fluency skills in the French language as the four other translators.

Materials

This section presents the instruments used during this phase of the pilot study, the CAMWB, the BMSLSS, and the PWI-SC.

Comprehensive Adolescent Measure of Well-Being- French Revised (CAMWB-FR: Rault, Unpublished).

The 46-item instrument assessed SWB in school-aged children and adolescents in the domains of Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. Participants are asked to select their answers on a Likert-type response scale ranging from 1 *Never* to 6 *All the time*. Refer to Table 23 for response ranges and example items. The questionnaire includes an additional two demographic questions (age and gender).

Items were generated based on open-ended questionnaires conducted in Australia and in line with the literature. A panel of experts in Australia and France reviewed the items and

assisted with the creation of additional questions. Psychometrics of the instruments had not yet to be established.

Table 23

Domains and example items of the CAMWB

Domain	**Example item**
Worry	I worry about money
	I worry about having a job
Peer satisfaction	I feel understood by my friends
	I am part of a group of friends
Exposure to bullying	I have witnessed students being laughed at
	I have witnessed students being excluded
School satisfaction	I feel understood by my teachers
	I feel safe at school
Physical health	I exercise
	I feel healthy
Family satisfaction	I have a good relationship with my mother
	I enjoy spending time with my family
Self-appraisal	I am satisfied with my personality
	I respect myself
Positive emotions	I feel calm
	I feel happy
Negative emotions	I feel angry
	I feel tired

Created by the author, Camille Rault, 2020.

BMSLSS- Peabody Treatment Progress Battery version (BMSLSS-PTPB, Bickman et al., 2010)

As previously described.

Personnel Well-Being Index- School Children (PWI-SC; Cumming & Lau, 2005).

As previously described.

Procedure

The opportunity sample of bilingual individuals was instructed the aim of the study and the target population for the CAMWB. Participants were instructed to translate the questionnaire with as few personal additions as possible and with the use of simple language. The revised French version of the CAMWB was given to two translators to be translated into English. Once they completed the translation, the researcher reviewed the two English versions and submitted them to the other two translators for a French translation. The second pair was required to translate the instrument from English to French and comparisons were made with the original. Finally, the last two translators were provided with the French versions of the CAMWB and translated it back to English (see Figure 4. Application of Brislin's model of back-translation (CAMWB-FR: French version; CAMWB-EN: English version).Figure 4). Two participants were also instructed to translate the BMSLSS-PTPB and PWI-SC from French to English. Comparisons were then assessed.

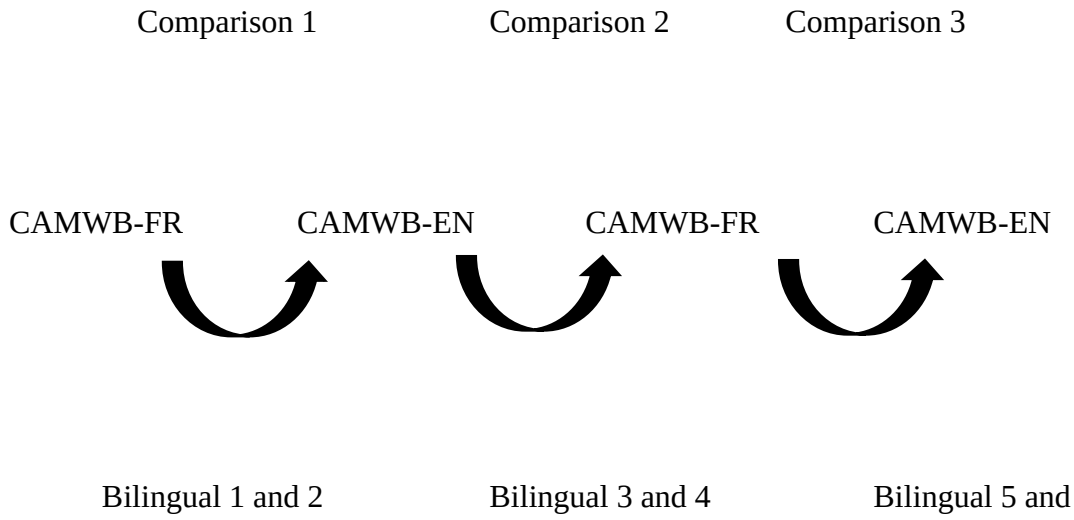

Figure 4. Application of Brislin's model of back-translation (CAMWB-FR: French version; CAMWB-EN: English version).Created by the author, Camille Rault, 2020.

Results

Translations were satisfactory. The first comparison showed that the translation into English was simple and that no additional meaning or sentence manipulation was needed. The second comparison showed that the back-translation into French was adequate as the items returned to their original form. Finally, the last comparison demonstrated that the items returned to their original form in English. The back-translation of the BMSLSS-PTPB and PWI-SC was satisfactory as the items return to their original form. This was regarded as a successful outcome.

Phase four: Pilot testing

Method

Participants

A cohort of 53 children (18 females, 34%; 35 males, 66%) aged between 10 and 11 (M = 10.19, SD = 0.44) completed the French version of the CAMWB. The decision was made to use a young sample to assess the readability of the items. Students were recruited from a school where many families are of low SES and where French is not the only spoken

language at home[30]. This school is in a ZEP (Z*one d'Education Prioritaire*), which is a priority area requiring specialised educational assistance in terms of staff and funding. The aim was not to achieve sample representativeness but for a conservative estimate of vocabulary range to be assessed. Consequently, the current sample of children was appropriate.

Material

The Comprehensive Adolescent Measure of Well-Being (CAMWB; Rault, Unpublished) is a 46-item instrument measuring adolescents SWB on multidimensional aspects, namely Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. The questionnaire included an additional two demographic questions (age and gender). Participants were asked to rate their level of agreement with the items on a Likert-type response scale ranging from 1 *Never* to 6 *All the time.* Higher scores on the scale indicated higher levels of well-being and for each subscale higher scores indicating higher levels of the construct being measured. Items were generated based on focus groups conducted in Australia and in accordance with the literature. A panel of experts in Australia and France reviewed the items and assisted with the creation of additional questions. The questionnaire was translated and back-translated to ensure its validity cross-culturally. The psychometrics of the CAMWB had not yet been established (See Appendix D).

Procedure

Participants were provided with a pen and paper form of the questionnaire during class. They were instructed to complete the questionnaire and make note of anything which

[30] Low SES and home bilingualism have been documented to have an adverse effect on children's language skills (Hoff, 2013).

was unclear. These notes were to be recorded next to the problematic item, if any. Teachers were asked to record any difficulty the children faced completing the CAMWB. The survey took approximately 15 minutes for participants to complete.

Results and Discussion

The aim of this study was to refine the CAMWB as the previous study demonstrated that some improvements were needed to comprehensively represent key domains of adolescent's SWB. Additionally, the current study sought to adapt the CAMWB for cross-cultural use and pilot test it using a French sample. Two scales used in the research also needed to be translated and back-translated to ensure language equivalence of the items. Another two instruments were submitted for review to the expert panel.

Although, the influence of culture on language is considered important (Hofstede, 1980), strategies can be employed to minimise cultural bias of items and response modes. In accordance with the World Health Organisation (WHO, 2018) recommendations and past cross-cultural literature, the CAMWB was translated and back-translated as a means of achieving a French version of an Australian-English measure that was socially and culturally appropriate for French populations (Beaton et al., 2000; Brislin, 1970; Hofstede, 1980; Triandis, 1994; Sperber, 2004). Additionally, the instrument was reviewed by a panel of experts, and piloted by a young cohort of students. The panel offered some insight into the level of language needed for the target population and assisted in the generation of additional items. The piloting of the instrument was performed on students in year 6 in order to ensure that the CAMWB was adequate for a young cohort. Finally, the translation and review of the BMSLSS-PTPB, the PWI-SC, the KADS-6 and the A-COPE were performed. The current study was broken down into four phases.

The translation raised a number of issues pertaining to three items of the CAMWB,

specifically, the sensitivity of one item and lost meanings during translation of two items. Sechrest and Fay (1972) reported direct translation of instruments from one language to another did not guarantee equivalence of meaning. Consequently, two additional items were generated by translators to compensate for the items excluded. The translation of the PWI-SC was satisfactory. However, results from the translation of the BMSLSS suggested that an alternate version of the instrument should be used. Since the wording of the BMSLSS was not compatible with the French language, the BMSLSS-PTPB was selected. The BMSLSS-PTPB was found to be more accessible for children and adolescents.

The panel of experts was noted that the item relating to nationality and racism may create a divide or put a burden on the participants. Additionally, in a French context, these items are culturally loaded, and the panel of educational experts advised that it would be detrimental to retain these items. It was also suggested that many school principals would not feel comfortable having their students answer such questions. It was also noted that items relating to adolescent's employment lacked cultural validity. French employment laws are not propitious for casual contracts, which limits the employability of students. A systematic review indicated that adolescent employment was virtually inexistent in France (Larson & Verma, 1999). These two items did not load on previous solutions of the instrument and were therefore excluded from the questionnaire.

The panel of experts advised a review of the complexity of vocabulary used for some questions. As previously noted, these experts worked at a school where the students possess a restricted level of vocabulary. By designing the questionnaire using a conservative benchmark, the researcher aimed to render the instrument as simple as possible to avoid any language-related issues. This feedback aligned with the recommendations of Brislin et al. (1973), which encouraged simple and short sentences in questionnaires. The panel also assisted in the refinement of existing items and the development of additional items (12).

This process reduced the length of the scale and provided better coverage of the intended domains of SWB. Furthermore, the panel reviewed the BMSLSS-PTPB, the PWI-SC, the KADS-6, and the A-COPE that were to be utilised in the following studies and validated their use for the target population.

Back-translation has been shown to ensure the conservation of the meaning of the items from original to translated versions (Behling & Law, 2000). For this study, the back-translation was highly satisfactory as the items translated back to their original English form after being translated to English and then back to French. The simplistic language of the instrument allowed for a direct translation of the items. This is of paramount importance in cross-cultural psychology as it prevents language bias that may influence findings (Cha, Kim, & Erlen, 2007). While back translation aids in reducing language bias prevalent in cross-cultural research, this process does not completely eliminate any pervasive effect of the language (Brislin, 1970; Hofstede, 1980). Therefore, although the cross-cultural validation of the instrument appeared to be satisfactory, it was important to be wary of any potential embedded cultural bias present in the questionnaire.

Young participants completed the instrument without difficulty attesting to its usability with this cohort. The participants responded in a meaningful manner and no items were flagged as problematic. Consequently, the new version of the CAMWB showed promise to be effective for a cross-cultural study. The new version of the CAMWB was designed to measure SWB on nine domains, Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Experiences of Bullying, Physical Health, and Worries. The next chapter investigated the construct validity of the CAMWB.

Chapter 6

Study 3: Adolescent well-being: Construct validity in the French sample

This chapter explored the construct validity of the CAMWB in a French (study 3) and in an Australian sample (study 4). This investigation aimed to highlight whether cultural differences would influence the composition of the factors in the CAMWB. The previous study refined and rendered the CAMWB cross-culturally valid by a process of translation and back-translation. To increase domain coverage[31] of adolescent Subjective Well-Being (SWB), an additional 14 items were generated with the assistance of an educational expert panel. The addition of items was necessary as studies 1b and 1c factor solutions did not show three of the most significant contributors to adolescent SWB, namely friend, family and school satisfaction. The final stage of study 2 resulted in a successful pilot testing of the CAMWB with a sample of students who experienced social and/or economic disadvantage, thus demonstrating the suitability of this instrument to young vulnerable individuals.

The present study used a sample of high-school students to investigate the construct validity of the CAMWB in a French context. Exploratory Factor Analysis (EFA) was employed to determine whether the intended domains of SWB were represented in the questionnaire. EFA had been used in prior studies (study 1 b and 1 c) as an effective approach to explore construct validity. It was predicted that the CAMWB would demonstrate adequate a nine-factor solution measuring, Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health,

[31] The CAMWB was designed to be a multidimensional instrument that would provide a comprehensive measure of adolescent SWB and would aid in the identification of the specific domains of SWB that challenged adolescents. By measuring specific domains and yielding domain scores, the CAMWB provides an opportunity for professionals to identify precisely the area of life that needs improvements and to implement appropriate strategies to meet these needs (Kern, Waters, Adler, & White, 2015).

and Worries. Additionally, it was predicted that each factor and the CAMWB overall would present with acceptable internal consistency.

Method

Participants

The sample included 385 adolescents aged between 14 and 17 (M = 15.43, SD = 0.67). Adolescents were sourced from a single high-school in the south of France and consisted of 233 females (61%), 143 males (37%) and nine students (2%) opting for the "*prefer not to answer*" option in response to the question regarding gender. The recruited high-school comprised of students with varying types of social and economic backgrounds. Similar to Australia, in France, a student's allocation to a school depends on each student's home address. The participants' high-school was located in the centre of a medium-sized French city. The school was located in close proximity to neighbourhoods at both the lower and higher ends of the social spectrum. As a consequence, the socioeconomic status[32] of the students who attended the recruited school was regarded as a good representation of the wider French population.

Material

The Comprehensive Adolescent Measure of Well-Being (CAMWB: Rault, Unpublished) is a 46-item instrument measuring adolescent SWB across multidimensional domains including, Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. The instrument included an additional two demographic questions (age and gender). Participants were asked to rate their level of agreement with the items on a Likert-type response scale ranging from 1 *Never* to 6 *All the time.* Higher scores on the scale indicated

[32] Due to privacy related laws, France does not have the equivalent of a SEIFA scores, because it would go against the privacy of taxes and would be perceived as stigmatising certain areas.

higher levels of well-being, and for each subscale higher scores indicating higher levels of the construct being measured.

Items were generated based on prior literature and open-ended questionnaires using a focus groups of students from Australia. A panel of experts in Australia and France reviewed the items and assisted with further item generation. The questionnaire was translated and back-translated to ensure its language equivalence cross-culturally. The latest version of the CAMWB was pilot tested by a group of young French students and was found to be appropriate to measure adolescent SWB.

Procedure

The study was conducted in accordance with the Australian Code for the Responsible Conduct of Research (2007) and with section 4.8 (People in other countries). The Inspection Académique du Var consented to their schools being surveyed subject to approval of the principals. All students completed the questionnaire over a one-week period. Students completed the questionnaire in classes of approximatively 60 during sessions organised by the school for self-development. The questionnaire completion was conducted in the computer room of the high-school. A link to the online survey package was provided to all students and participants were instructed to complete the self-administered task. The survey took approximately 15 minutes to complete.

Results

Preliminary analyses

Prior to running statistical analyses, the data set was checked for data entry errors and missing values. All analyses were then carried out using IBM® SPSS Statistics 25. A missing values analysis was performed and revealed that the dataset contained less than 20 percent missing values. Enders (2003) suggested that in psychological and educational research, data

was missing at a rate close to 20 percent. This rate of missingness can be problematic in the event of the data not missing at random, however analyses revealed that in the current dataset the data was missing completely at random. Therefore, there was no underlying issue associated with missingness. A process of mean imputation was applied to adjust with the missing cases (Dong & Peng, 2013). Univariate normality was assessed with visual inspections of histograms and univariate outliers were identified using Box and Whisker's plots. Variables were found to fall within the acceptable range and the presence of skewness was in the expected direction. were identified but further analyses showed that they were not significantly influential and therefore these cases were retained in the dataset. Visual inspection of the scatterplots suggested that the assumption of linearity was met. The assumptions of the absence of multicollinearity and singularity were respected as there were no inter-item correlations above .80. The dataset presented with a KMO value of .78, suggesting that the dataset was factorable (Kaiser, 1970).

Exploratory Factor Analysis and Internal Consistency

The process of EFA has been described in study 1b. The current study employed the same criteria and steps for the selection of a final solution. Cattell's criterion provided the lower bound estimate of the number of factors and suggested to extract six factors. While there were 14 eigenvalues greater than 1, providing the upper bound estimate. The solution space was explored using oblique rotations only. Although the CAMWB underwent some changes, the factors were expected to show similar correlations to the first version of the instrument. Maximum Likelihood extraction was used considering the normal distribution of the data (Guadagnoli & Velicer, 1988; Henson & Roberts, 2006). Theory was driving the testing of the solutions, and therefore every solution with a number of factors between six and nine was evaluated.

An 8-factor solution using a Maximum Likelihood extraction with oblique rotation was the most interpretable solution and had logical interpretability, accounting for 37.74 percent of the variance. The factors were labelled Self-Appraisal, School Satisfaction, Peer Satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Dissatisfaction, and Worries. Cronbach's alphas were calculated with and without items that presented with loadings less than .30 on the factor to examine whether these items were to be included in the factor. Cronbach's alpha ranged between .56 and .79, which was considered acceptable (Nunnally, 1967). The final solution included 44 items and had an overall Cronbach's alpha of .84. Table 24 displays the final solution. Scoring instructions are available in Appendix E.

Table 24

Final solution of the factor analysis for the CAMWB, with loading, communalities, amount of variance per factor and reliability.

Item	SA	SS	PS	EB	NE	FS	HD	W	Comm
I feel happy	**.83**	-.02	-.02	-.10	.15	-.05	-.15	.01	.73
I feel loved	**.68**	.08	-.01	-.14	.08	-.07	.05	-.08	.56
I think I have (…) good qualities	**.56**	.09	.08	.19	-.16	-.06	.06	-.01	.45
I have a positive attitude towards life	**.46**	.13	.16	.03	-.02	-.07	-.19	-.13	.45
I am satisfied with my personality	**.38**	-.01	.10	.17	-.20	-.08	.03	-.06	.3
I respect myself	**.38**	-.06	.07	-.01	-.19	-.05	.03	.13	.24
I sleep well	.22	.16	.05	-.13	-.06	-.14	-.14	.08	.23
I have a good relationship with my teachers	.12	**.61**	.01	-.04	.21	.04	-.04	-.04	.43
I am satisfied with my subject choices	.15	**.57**	-.09	.01	-.02	.01	-.01	-.01	.36
I feel understood by my teachers	-.01	**.55**	.06	-.09	-.11	-.08	.02	-.21	.42
I enjoy learning	.03	**.54**	-.16	.18	-.20	-.05	-.13	.22	.48
I enjoy coming to school	.06	**.51**	-.07	.06	-.22	-.13	-.12	.31	.5
I receive the support I need at school	-.04	**.47**	.06	-.05	.05	-.16	-.01	-.04	.29
I eat healthy food	-.13	**.43**	.27	.02	-.02	-.08	-.01	-.01	.3
I feel calm	-.08	**.25**	-.20	-.14	.04	-.11	-.12	-.01	.20
I feel safe at school	.05	**.15**	.01	-.04	-.20	-.04	-.07	.04	.10
I spend time in a club	.03	.17	.16	-.02	-.04	.07	-.03	-.10	.08
I go on outings with friends	.11	-.18	**.71**	-.04	.01	-.09	.04	.01	.6
I organise get-togethers	-.05	.11	**.65**	-.02	-.01	-.12	.07	.05	.45
I exercise	.06	.04	**.51**	-.02	-.03	.11	-.21	-.13	.35
I am part of a group of friends	.22	-.01	**.43**	-.12	.05	.01	-.02	-.09	.32
I feel understood by my friends	.23	.07	**.31**	-.09	.02	-.17	.01	-.10	.30
I use social media	.14	-.21	**.30**	.05	.02	-.11	.21	.14	.26
I have witnessed students being excluded	-.04	.03	-.04	**.80**	.01	-.07	-.01	-.01	.62
I have witnessed students being laughed at	-.01	.08	-.10	**.72**	.08	.01	.01	-.15	.55

I have witnessed students being victims of violence	.08	-.06	.03	**.56**	-.02	.03	-.04	-.02	.32
I am satisfied with my body shape	.21	.20	-.02	.02	**-.51**	.06	.07	-.05	.39
I worry about violence happening nowadays	.03	.27	-.04	.11	**.46**	-.08	-.02	.04	.30
I worry about my weight	-.06	-.10	.03	.06	**.45**	-.03	-.07	.07	.25
I feel worried	.03	.20	-.12	-.03	**.45**	.04	.16	.33	.48
I feel fearful	-.06	.27	-.05	-.07	**.45**	.01	.22	.18	.43
I feel like crying	-.20	.19	.18	.07	**.43**	.03	.20	.28	.57
I feel jealous	.03	-.02	.22	.02	**.31**	.15	.13	.21	.30
I feel tired	.03	-.12	-.05	.05	**.23**	.01	.19	-.04	.14
I have a good relationship with my father	.01	-.03	.01	-.26	-.11	**-.17**	-.09	-.14	.20
I have a good relationship with my siblings	.12	.11	.09	-.12	-.22	**-.22**	.15	.04	.21
I enjoy spending time with my family	.02	-.04	.02	.01	.07	**-.81**	.02	-.01	.64
I go on outings with my family	-.07	.04	.21	-.02	.01	**-.62**	-.11	.10	.46
I have a good relationship with my mother	.20	-.02	-.12	-.09	.13	**-.50**	.03	-.13	.39
I feel angry	-.07	-.17	.18	.08	.02	.28	.16	.09	.27
I get sick	.01	.08	-.05	-.02	.02	.01	**.69**	-.05	.45
I skip school	-.02	-.07	.11	.01	-.20	.13	**.66**	-.03	.52
I feel healthy	.25	.05	.14	-.08	-.04	.02	**-.36**	.01	.28
I worry about getting a job	-.16	-.08	-.09	-.08	-.12	-.01	-.04	**.67**	.49
I worry about my grades	.14	-.06	-.15	-.13	.15	-.02	-.02	**.55**	.38
I feel sad	-.29	.24	.14	.02	.32	.14	.08	**.37**	.57
I worry about money	-.02	.01	.16	.07	.09	.03	-.02	**.30**	.15
% Variance	12.90	6.83	5.22	3.96	2.88	1.86	2.04	2.03	
Eigenvalues	6.71	3.81	3.03	2.42	1.92	1.61	1.54	1.37	
Extraction SSL	6.07	3.21	2.46	1.86	1.35	0.88	0.96	0.96	
Rotation SSL	4.11	3.25	2.51	2.34	3.05	3.11	2.45	2.38	
Cronbach alpha	.79	.76	.68	.73	.73	.62	.59	.56	

Note. SA: Self-Appraisal, SS: School Satisfaction, PS: Peer Satisfaction, EB: Exposure to Bullying, NE: Negative Emotions, FS: Family Satisfaction, HD: Health Dissatisfaction, and W: Worries. Items that are not bolded were not retained in the final solution of the questionnaire. Created by the author, Camille Rault, 2020.

The first factor was labelled Self-Appraisal and included items measuring the cognitive evaluation of oneself. The items originally designed to measure positive emotions [33] "I feel loved" and "I feel happy" loaded onto this factor. This finding was understandable since individuals who have positive self-evaluation would also report feelings of happiness and love. Inspections of the loadings indicated the importance of the experience of positive emotions in self-evaluation for this sample. Although the item "I sleep well" did not load meaningfully on any factor, it presented its highest loading on Self-Appraisal. It was therefore proposed that individuals with a positive self-image and who feel comfortable with who they are might experience better sleep. However, the sleep quality item did not adequately represent Self-Appraisal, and consequently, was not included in the Self-Appraisal factor.

The second factor related to School Satisfaction and measured the degree to which adolescents were satisfied with their school experience. This factor measured satisfaction with the learning environment and interpersonal relationships with teachers. The item "I eat healthy food" loaded on the School Satisfaction factor. A cultural factor might provide an explanation for this finding (refer to the discussion section). The item "I feel calm" also loaded on this factor. While this item was designed to belong to a Positive Emotions factor, this result suggested that adolescents who reported feeling satisfied with their school environment, in which they spend a significant amount of time, would also report a feeling of calm. As a consequence, these two items were included in the computation of the School Satisfaction factor. In contrast, the item "I feel safe at school" did not load with the other items relating to the school environment. The highest loading for this item was on the

[33] A Tukey test of non-additivity was conducted to test whether the three positive emotions items could meaningfully be grouped together. Results was non-significant (p = .178), which supported the aggregation of these data. According to the Spearman-Brown prophecy, generation of additional positive emotions items could have assisted in forming a Positive Emotions factor.

Negative Emotions factor. Inspections of the frequency indicated that 29 percent of the sample felt unsafe at school, potentially this could have contributed to the experience of negative emotions[34]. This item was specific to school safety and to keep a simple factor structure, it was not included in the Negative Emotions factor. For theoretical reasons, the item was retained in this factor.

The third factor, Peer Satisfaction, measured the social interaction of adolescents and their feelings of belonging with their friends. The item "I exercise" loaded onto this factor, which might have reflected extra-curricular group activities that adolescents practiced together. There was no specification in the item that indicated whether the practice of exercise was done with or without others. This result possibly indicated that the participants were inclined to practice sports with their peers. In contrast, the item "I spend time in a club" presented with a weight too low to be included in the factor, and consequently was not retained.

The fourth factor described adolescents' Exposure to Bullying. This factor measured exposure to bullying without specifying the role of the bully or victim. This factor incorporated the passive form of bullying, which was characterised by exclusion and being intentionally ignored, as well as the active form of bullying which was either verbal or physical abuse. It was interesting to note that the weight of the loadings differentiated exclusion and verbal abuse from violence, similar to study 1b and 1c. The item pertaining to the relationship with the father loaded onto this factor. Several solutions were explored and consistently yielded a similar result, nonetheless, this item was not included in this factor. This result is discussed later in the Family Satisfaction domain.

[34] Frequencies showed that 10% answered *Never*, 9% answered *Very rarely, and* 10% answered *Rarely*.

The fifth factor measured Negative Emotions and included items pertaining to jealousy, crying, and fearfulness. Two items referring to body dissatisfaction, designed to measure Self-Appraisal, clustered on this factor, “I worry about my weight” and “I am satisfied with my body shape”. The item “I worry about violence happening nowadays” also loaded on this factor. It may be suggested that having a poor body image and worrying about levels of violence was associated with negative emotions. Contrary to predictions, the item “I feel sad” loaded onto the factor Worries and the item “I feel angry” loaded onto the Family Satisfaction factor. It was reasonable to suggest a relationship might exist between family dissatisfaction and the feeling of anger, and this explained the loading of this item onto the Family Satisfaction factor. However, it was decided not to retain the anger item in the final solution in order to keep a simple structure factor.

The sixth factor, Family Satisfaction, measured participants’ relationship satisfaction within the family unit and the activities shared with their family. As mentioned, the item “relationship with the father” presented with a higher loading on the Exposure to Bullying factor than on the Family Satisfaction factor. Frequency counts showed that 11 percent of the respondents declared *never* having a good relationship with their father and an additionally 8 percent selected *rarely*. It was proposed that adolescents exposed to bullying might have a difficult relationship with their father. Nonetheless, “relationship with father” more meaningfully mapped on the domain of Family Satisfaction. The “relationship with siblings” item also displayed a loading less than the arbitrary cut-off of .30. However, this could have reflected the fact that some adolescents did not have siblings. Both items were retained on this factor.

The seventh factor related to Health Dissatisfaction and included items pertaining to feeling healthy and falling ill. The item “I skip school”, which was originally intended to

measure school dissatisfaction, loaded on this factor. It may be suggested that this item might have been interpreted as missing school due to illness, as the correlation between the two items was significant ($r = .40$, $p < .001$). The term "skipping school" was meant to refer to intentionally missing classes to do other activities, and consequently the misinterpretation of this item was unforeseen. It was important to note that the three other items designed to measure physical health in the questionnaire ("I sleep well", "I eat healthy food", and "I exercise") did not load together onto the health factor.

Finally, the eighth factor, Worries, evaluated the level of worry experienced by the participants and represented worries pertaining to professional and financial concerns. As previously stated, the item "I feel sad" loaded onto this factor, which could have suggested adolescents experiencing worries would also report a feeling of sadness.

Correlations between factors and scores

Self-Appraisal (SA) was found to be significantly positively correlated with School Satisfaction (SS), Peer Satisfaction (PS), Family satisfaction (FS) and the overall score of the CAMWB. SA was also significantly negatively correlated with Negative Emotions (NE), Health Dissatisfaction (HD) and Worries (W). In this sample, SA did not share a significant association with Exposure to Bullying (EB). SS was significantly positively correlated with FS and the overall score of the CAMWB, and was significantly negatively correlated with HD. Interestingly, SS was not associated with PS and EB. PS presented with a significant positive correlation with FS, and the overall score of the CAMWB, and with a significant negative correlation with EB, NE, and W. NE showed to be significantly positively correlated with HD and W, but not with EB; and to be significantly negatively correlated with FS and the overall score of the CAMWB. FS was significantly positively associated with the overall score of the CAMWB, and significantly negatively associated with HD and W. HD and W

were significantly negatively correlated with the overall score of the CAMWB (refer to Table 25).

Table 25

Pearson's product correlations along with means and standard deviations for the factors and total-mean CAMWB (N = 385)

	1	2	3	4	5	6	7	8	9
1. Self-Appraisal	4.69 (0.80)	.21***	.39***	-.08	-.38***	.39***	-.26***	-.31***	.67***
2. School Satisfaction		3.82 (0.83)	-.06	-.07	-.07	.28***	-.29***	-.03	.45***
3. Peer Satisfaction			4.50 (0.83)	-.10*	-.11	.21***	-.08	-.12*	.46***
4. Exposure to Bullying				3.20 (1.21)	.07	-.29***	.12*	-.03	-.47***
5. Negative Emotions					3.27 (0.87)	-.17**	.22***	.50***	-.57***
6. Family Satisfaction						4.53 (0.90)	-.24***	-.13*	.63***
7. Health Dissatisfaction							2.13 (0.90)	.11*	-.53***
8. Worries								3.72 (0.91)	-.49**
9.Total-Mean CAMWB									4.17 (0.48)

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.
Created by the author, Camille Rault, 2020.

Discussion

The aim of study 3 was to investigate the construct validity and internal consistency of the CAMWB using a sample of French high-school students. An EFA was conducted to investigate whether the intended latent variables were represented in the questionnaire. Cronbach's alphas were computed to assess the internal consistency of the factors and of the entire scale.

It was expected that the CAMWB would demonstrate a nine-factor solution measuring, Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. However, the findings showed that the best-fit solution presented eight factors rather than nine. The items pertaining to positive emotions loaded on the Self-Appraisal and School Satisfaction factors rather than loading separately to form an additional factor. The incorporation of these items to the Self-Appraisal and School Satisfaction factors was found to be meaningful and added unique contributions to the factors, without significantly decreasing the internal reliability of these factors.

Several accounts were offered to explain why items pertaining to positive emotions did not cluster to form a Positive Emotions factor. First, the questionnaire might not have included enough items to create a factor of Positive Emotions, as three items might not have been sufficient for Positive Emotions to appear as a factor. Results from the Tukey test of non-additivity supported that suggestion. Kern et al. (2015) developed a questionnaire intended to map the PERMA framework (Seligman, 2011; refer to chapter two). Their investigation yielded four factors namely, Positive Emotions, Engagement, Relationships, and Accomplishment, but failed to include the fifth intended factor, Meaning. In their study, the items intended to assess

meaning were found to cluster with items pertaining to Relationships. Those authors suggested that the two items designed to measure Meaning did not have enough weight to appear as a single factor (Kern et al., 2015). The same technical issue might have prevented the emergence of a ninth factor measuring Positive Emotions in this study. Costello and Osborne (2005) suggested that a factor must have a minimum of four items to be reliable. The decision to use only three items was driven by time constraints during testing.

Second, the traditional model of SWB used with adults might not be applicable to adolescent SWB. In a similar way to a study by Kern et al. (2015), where Meaning merged with other domains, it was possible that the experience of positive emotions was combined with other aspects of life for adolescents. Nonetheless, the lack of representation of a Positive Emotions factor was at odds with the adult model of SWB (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984) and findings from studies 1 b and 1 c. Positive Emotions were a key element of SWB and were found to be positively significantly associated with life satisfaction, hope, gratitude, school engagement, physical vitality, and activity (Kern et al., 2015). Positive emotions were also identified as a key indicator of job success, positive relationships, and health (Howell, Kern, & Lyubomirsky, 2007; Lyubomirsky, King, & Diener, 2005). Despite this evidence, previous instruments measuring adolescent SWB did not include a factor measuring Positive Emotions (e.g. the Multidimensional Student Life Satisfaction Scale, the Quality Of Life Profile - Adolescent version, the Perceived Wellbeing Index - School Children). Although these instruments neglected the affect aspect of SWB and focused mainly on life satisfaction domains, their application in the field demonstrated their usefulness.

Third, it was proposed the results from the current study were culturally dependent. It was possible that French adolescents associated their experience of positive emotions with specific aspects of their lives. Additionally, although Positive Emotions did not emerge as a single factor, the items pertaining to positive emotions were still retained in the solution, and therefore French adolescents' experience of positive affect was still being measured. If the third explanation was to be true, testing for construct validity in the Australian sample might produce a different outcome.

Despite the absence of a Positive Emotions factor, the construct validity of the instrument was supported. As predicted, a factor relating to Self-Appraisal emerged and grouped the items relating to adolescents' cognitive evaluation of their personal qualities. This finding was consistent with other measures of SWB and quality of life that have included factors related to *psychological being* (e.g. Perceived Wellbeing Index - School Children) and *self* (e.g. Multidimensional Student Life Satisfaction Scale, the Brief Multidimensional Student Life Satisfaction Scale, the Youth Quality of Life Instrument-research version). Positive cognitive evaluations were associated with higher levels of SWB and were central to the appraisal of SWB (Diener & Diener, 1995; Kim, Schimmack, Cheng, Webster, & Spectre, 2015). The item relating to sleep quality presented with its highest loading onto the Self-Appraisal factor. Poor sleep quality was associated with a lower level of self-esteem (Fredriksen, Rhodes, Reddy, & Way, 2004), a concept closely related to self-appraisal. However, to keep a simple structure and considering the low weight, this item was not included in the factor. This factor also included two positive emotions items reflecting the association between positive self-appraisal and the experience of positive emotions (Ruvalcaba-Romero, Fernandez-Berrocal, Salazar-Estrada, & Gallegos-Guajardo, 2017). The weights of the loadings of the positive emotions' items suggested

the importance of emotions in self-evaluation for this sample. This finding could have reflected a cultural aspect of French culture. Gaffney (2004) argued that French culture was "highly emotional" and that this was illustrated in its social and political structures as well as institutions. He furthered posited that French nationalism was anxious, vulnerable, and feminine. These suggestions aligned with France's score on Hofstede's cultural indicator of masculinity. France scored 43, indicating that more feminine values were present in the culture.

The addition of items pertaining to School Satisfaction following the recommendations of the panel of educational experts, produced a School Satisfaction factor. Relationships with teachers appeared to be important in this factor, as indicated by the loading of items pertaining to these relationships. It was important that young people feel supported at school (Lingard et al., 2001) as it was suggested that school satisfaction was a key predictor of overall SWB, positive relationships, and academic progress (Oriol, Torres, Miranda, Bilbao, & Ortuzar, 2017, Prati, Cicognani, & Albanesi, 2017; Wentzel, 2010). The item pertaining to healthy eating loaded onto this factor. The item relating to safety at school did not load onto the School Satisfaction factor, instead it loaded onto Negative emotions. This was at odds with previous research that identified school safety as an important aspect of school satisfaction (Aldridge & McChesney, 2018), and consequently was retained in the solution. The CAMWB, by incorporating a School Satisfaction factor, allowed for the assessment of adolescents' perception of their school environment.

This version of the CAMWB also included a factor measuring Peer Satisfaction, which related to how included, connected, and engaged adolescents were with their peers. Friendships were critical during adolescence as they allowed individuals to develop socially (Park, 2004; Steinberg, 2002; Veronneau, Trempe, & Paiva, 2014). The item pertaining to exercise was included in this domain because the literature suggested that practising exercise together could

foster positive peer satisfaction and emotional well-being (Taylor, Gillies, & Ashman, 2009). Positive peer interactions might negate some of the adverse outcomes experienced by adolescents during this life stage and contribute to increased SWB (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013, Oriol et al., 2017). Consequently, it was necessary that the CAMWB measured how satisfied adolescents were with their peers.

A factor measuring students' Exposure to Bullying was extracted. Although this factor only counted three items, their loadings were relatively high, and the internal reliability was also found to be satisfactory. Bullying was identified as a significant factor influencing SWB (Gobina, Zaborskis, Pudule, Kalnins, & Villerusa, 2008), with long-lasting negative consequences for the individuals involved (Rigby & Slee, 1993). Bullying has become a prevalent phenomenon (Cross et al., 2009; Rigby, 2000; Rigby & Slee, 1993; Thomas et al., 2017) and despite its prevalence (Kerr Valois, Huebner, & Drane, 2011), was not included in the most widely used measures of adolescents' SWB. The CAMWB remedied this gap in the literature and offered an instrument to researchers in the field of adolescent's SWB that could identify students at risk of bullying.

In contrast to Positive Emotions, the items pertaining to negative emotions loaded together to represent a Negative Emotions factor. In addition to the items designed to target negative emotions, two items pertaining to body image and one item related to the fear of violence loaded onto this factor. The academic literature presented sufficient evidence to support a relationship between body image dissatisfaction and negative emotions including low self-esteem, psychological distress (McCreary, 2012; Thompson & Cafri, 2007), and lower levels of SWB more broadly (Delfabbro, Winefield, Anderson, Hammarstrom, & Winefield, 2011). Similarly, students who experienced fear of violence could have internalised these fears and

therefore be at risk of experiencing heightened levels of negative emotions. The recurrent emergence of a factor measuring Negative Emotions, throughout the previous studies, suggested the importance of this construct in the appraisal of SWB.

Another improvement offered by this version of the CAMWB was the emergence of a factor measuring Family Satisfaction. This factor measured satisfaction with interpersonal relationships within the nuclear family, satisfaction with the time spent with family members, as well as the occurrence of and involvement in family activities. Families were an important source of support for adolescents (Windle, 1992) and family interactions contributed to the individual's SWB (Rask, Astedt-Kurki, Paavilainen & Laippala, 2003). Consequently, the inclusion of items pertaining to family satisfaction was necessary to ensure domain coverage. It was important to note that "relationship with father" did not present with the expected loading on this factor and instead loaded more strongly onto the Exposure to Bullying factor. It was important to determine whether this finding would be replicated using an Australian sample suggesting a link between bullying exposure and relationship with father.

The CAMWB also contained a factor evaluating health. Considering the direction of the loadings of the items, this factor was labelled Health Dissatisfaction. Physical health was an external indicator of well-being (Chan, 2015) and was necessary for inclusion in a measure of SWB. As previously noted, three items that were designed to measure health ("I sleep well", "I exercise, and "I eat healthy food") did not load on this factor. However, the item related to avoiding school clustered onto this life domain. Given that this factor included the item "I feel sick", this grouping could be an artefact arising from the correlation between the two items or representative of adolescents who miss school due to sickness. It was important to measure

adolescent perceptions of their physical health because internalisation of external problems was found to be high for adolescents (Bor, Dean, Najman, & Hayatbakhsh, 2014).

The final factor included items related to Worries, which pertained to financial stability, academic and professional life. Worries were common in the modern world (Asmundson, Abramowitz, Richter, & Whedon, 2010; Koteles, Freyler, Kokonyei, & Bardos, 2015; Petrie & Wessely, 2002). According to cognitive development theory (Piaget, 1959), adolescents around the age of 12 start developing abstract thinking and planning for the future. This thought process could be the trigger of worries in adolescents who have to learn to anticipate future events (Laugesen, Dugas, & Buckowski, 2003). Additionally, adult worriers reported noticing their problematic worrying behaviours to have started during adolescence (Fournier, Freeston, Ladouceur, Dugas, & Guevin, 1996). Previous research suggested that academic related-worry was the most common theme of worry amongst adolescents (Fisher, Keogh, & Eccleston, 2017; Lauermann, Eccles, & Pekrun, 2017, Silverman, La Greca, & Wasserstein, 1995; Tang & Westwood, 2007; Tikkanen, 2016). It appeared logical that worries regarding school performances extended towards job prospects and income. In addition, the item “I feel sad” grouped with the items designed to assess Worries. This finding supported previous research that has documented an association between high levels of worry and decreased SWB (Pekrun, 1992).

This internal consistency was demonstrated with the alpha values ranging from .56 to .79 for the subscales and a Cronbach’s alpha of .84 for the overall scale. Although a Cronbach’s alpha lower than .70 could be considered weak, the original work of Nunnally (1967) suggested that values around .50 and .60 were sufficient. Additionally, it was argued that lower internal consistency could guarantee a better validity of the construct (Boyle, 1991; Cortina, 1993). In the

current study, there were instances where deleting the items could have slightly improved the alpha values. However, domain coverage of the construct measured was prioritised over the marginal improvement of internal consistency.

Limitations and future research

Despite important findings, this study was not without limitations. Although construct validity was partially supported and the majority of intended factors emerged from the statistical analysis, the positive component of SWB, Positive Emotions, did not appear in the solution. Given positive affect is a key element of SWB, further research was regarded as necessary to investigate this outcome. There were also items, such as the relationship with father and healthy eating, which showed an unexpected pattern of loadings. This could be culturally bound and therefore replicating these results using an Australian sample was considered as necessary.

Study 4: Adolescent well-being: Construct validity in an Australian sample

Study 3 tested the construct validity of the CAMWB in a French context and produced an eight-factor structure that adequately mapped adolescent SWB. However, the factor intended to measure Positive Emotions did not emerge from the statistical analyses. Similarly, some items showed unexpected patterns of loading and others did not load meaningfully onto the solution. The current study employed the same statistical analysis with an analogous sample of adolescents to test whether these findings would be replicated. The sample used in this study comprised Australian adolescents with a similar mean age and gender composition as for study 3. Based on the aforementioned literature in chapter 1 and 3 regarding Bronfenbrenner's model (1977), cultural influences on development were expected in the factor structure of the instrument.

Consistent with the hypotheses of study 3, It was predicted that the CAMWB would demonstrate adequate a nine-factor solution measuring, Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. Additionally, it was predicted that each factor and the CAMWB overall would present with acceptable internal consistency.

Method

Participants

A sample of 377 adolescents, aged between 14 and 18 (M = 16.01, SD = 0.87), was sourced from a single high-school in a South-Eastern suburb of Melbourne. This selective entry high-school that starts at year 9 responded positively to the request to participate. The sample consisted of 203 females (54%), 165 males (44%) and nine students (2%) opted for the "*prefer*

not to answer" option. The area where the school is located, scored in the 7th decile with a raw IRSAD score of 1,032.

Material

The Comprehensive Adolescent Measure of Well-Being (CAMWB; Rault, Unpublished) is a 46-item multidimensional instrument measured adolescent SWB across several domains including Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries. The instrument included an additional two demographic questions (age and gender). Participants were asked to rate their level of agreement with the items on a Likert-type response scale ranging from 1 *Never* to 6 *All the time.* Higher scores on the scale indicated higher levels of well-being, and for each subscale higher scores indicating higher levels of the construct being measured.

Items were generated based on prior literature and open-ended questionnaires using a focus groups of students from Australia. A panel of experts in Australia and France reviewed the items and assisted with further item generation. The questionnaire was translated and back-translated to ensure its language equivalence cross-culturally. The latest version of the CAMWB was pilot tested by a group of young French students and was found to be appropriate to measure adolescent SWB. Construct validity was tested on a sample of 385 French adolescents (M = 15.43, SD = 0.67) and yielded eight factors, as no factor measuring Positive Emotions emerged. The final solution for the French sample retained 44 items. The reported Cronbach's alpha ranged between .56 and .79, for the subscales and was of .84 for the entire instrument. The current study is the first utilisation of this version of the CAMWB with an Australian sample (See Appendix A).

Procedure

The study was conducted in accordance with the Australian Code for the Responsible Conduct of Research (2007). Survey completion was carried out during one session organised by the school and all participants completed the survey on the same day. The cohort was directed to the computer room where a link to the online survey package was provided. Participants were instructed to complete the self-administered task. The survey took approximately 15 minutes to complete. Due to a coding issue in Qualtrics the item "I spent time in clubs" was excluded from the analysis.

Results

Preliminary analyses

Prior to running statistical analyses, the data set was checked for data entry errors and missing values. All analyses were then carried out using IBM® SPSS Statistics 25. A missing values analysis was performed and revealed that the dataset contained less than 20 percent missing values. Similar to study 3, the data was missing completely at random therefore mean imputation was applied (Dong & Peng, 2013). Univariate normality was assessed with visual inspections of histograms and univariate outliers were identified using Box and Whisker's plots. Variables were found to fall within an acceptable range and the presence of skewness was in the expected direction. Mahalanobis Distance was computed to identify multivariate outliers (p <.001). Fifteen cases were identified but further analyses showed that they were not significantly influential. Therefore, these cases were retained in the dataset.

Visual inspection of the scatterplots showed that the assumption of linearity was met. The assumptions of absence multicollinearity and singularity were respected as there were no inter-

item correlations above .80. The KMO value of .87, indicated the dataset was factorable (Kaiser, 1970).

Exploratory Factor Analysis and Internal Consistency

The process used to select the final solution in the current study mirrored that of previous studies. Cattell's criterion suggested four factors. According to Kaiser's criterion, thirteen factors could be extracted. The solution space was explored using oblique rotations only, as correlations between factors were expected based on the previous studies. Maximum Likelihood extraction was used considering the normal distribution of the data (Guadagnoli & Velicer, 1988; Henson & Roberts, 2006). As indicated, the theoretical solution was considered in exploring the solution space. All solutions between four and nine factors[35] were evaluated.

Similar to study 3, an 8-factor solution using a Maximum Likelihood extraction with oblique rotation was the most interpretable solution. This accounted for 45.44% of the variance and had logical interpretability. The factors were labelled Self-Appraisal, School Satisfaction, Peer Satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Satisfaction, and Worries. Comparable to the French sample, this solution did not yield a factor measuring Positive Emotions. However, the organisation of the position emotions items was different from the one yielded with the French sample. For the items that were presenting with loadings lower than .30 on the factor, Cronbach's Alpha was computed with and without the items to examine whether the item was to be included in the factor. Cronbach's alpha ranged between .66 and .85, which was considered acceptable. The final solution counted 45 items and

[35] However, Kaiser's criterion is notorious for over-factoring and a better approach is to limit the upper number of factors to that specified by the theoretical model

had an overall internal consistency of .91. Table 26 displays the final solution. Scoring instructions are available in Appendix F.

Table 26

Final solution of the factor analysis for the CAMWB, with loading, communalities, amount of variance per factor and reliability

	Factor								
	SA	PS	FS	EB	SS	NE	HS	W	Comm
I think I have a number of good qualities	**.70**	.01	-.07	.02	.18	.04	.08	-.09	.62
I respect myself	**.67**	.03	.08	-.11	.01	-.10	.01	.05	.59
I am satisfied with my personality	**.57**	.09	.02	.01	.09	.01	.07	-.19	.52
I have a positive attitude towards life	**.55**	-.04	.14	-.03	.09	-.21	.11	.16	.60
I feel happy	**.46**	-.03	.23	-.01	.10	-.24	.07	.11	.57
I go on outings with friends	-.09	**.94**	.08	.01	-.01	-.05	.11	.03	.89
I organise get-togethers	-.05	**.72**	.09	-.05	.04	.07	.19	.13	.60
I use social media	.07	**.47**	.02	.03	.04	.05	-.24	-.01	.30
I am part of a group of friends	.10	**.28**	.08	-.08	.13	-.09	.05	.02	.19
I feel understood by my friends	.14	**.25**	.17	.01	.28	.02	.05	-.11	.33
I enjoy spending time with my family	.00	.04	**.87**	-.04	-.01	.01	-.10	.02	.72
I have a good relationship with my mother	-.07	.04	**.76**	-.02	.01	-.06	.03	-.09	.62
I go on outings with my family	-.02	.13	**.75**	.13	-.03	-.04	-.02	.02	. 58
I have a good relationship with my father	.01	.03	**.73**	-.04	-.05	-.03	.01	-.02	.55
I have a good relationship with my siblings	.15	-.03	**.46**	.00	.05	.08	-.01	-.01	28
I feel loved	.29	.10	**.41**	-.06	.11	.07	.12	.07	.50
I have witnessed students being laughed at	-.03	-.02	-.02	**.80**	.09	.02	.01	-.03	.62
I have witnessed students being excluded	-.05	.01	.07	**.80**	.07	.08	-.01	-.03	.64
I have witnessed students being victims of violence	.04	-.01	.01	**.70**	-.04	-.08	.01	.06	.50
I receive the support that I need at school	.14	-.03	.02	.06	**.77**	-.10	-.08	.00	.66
I feel understood by my teachers	.01	.09	.01	.12	**.77**	-.02	-.02	-.07	. 58
I have good relationship with my teachers	.05	.02	-.04	.01	**.74**	.06	-.01	-.03	.53
I enjoy coming to school	-.05	.01	.01	.01	**.60**	-.22	.14	.10	.50
I enjoy learning	.05	-.05	.01	-.13	**.45**	.02	.14	.05	.32
I feel safe at school	.06	.11	.01	-.19	**.35**	.01	.01	-.07	.26
I am satisfied with my subject choices	.11	-.05	.20	-.12	**.26**	.15	.09	-.13	.28
I feel like crying	-.13	.07	-.07	-.07	-.07	**.67**	-.07	.03	.61
I feel sad	-.18	-.01	-.15	-.02	-.05	**.64**	-.07	-.03	.64
I feel worried	-.11	.03	.04	.03	-.04	**.58**	-.04	.18	.50

I feel angry	.09	.00	-.06	.16	-.18	**.48**	.04	.03	.37
I feel fearful	-.09	-.05	.03	.08	-.01	**.45**	-.04	.12	.32
I feel tired	-.11	.05	-.15	.02	.06	**.45**	-.14	.03	.38
I feel calm	.35	-.07	.23	-.09	-.04	**-.36**	-.01	.10	.44
I feel jealous	-.07	.02	-.04	.14	-.06	**.33**	-.01	.20	.30
I get sick	.01	.04	.05	.02	-.06	**.31**	-.13	.08	.16
I skip school	.12	.20	-.11	.08	-.18	.22	.00	-.13	.18
I feel healthy	.13	.03	.03	.04	.06	-.08	**.73**	-.08	.73
I exercise	.01	.08	-.05	.05	-.04	-.18	**.56**	.03	.36
I eat healthy food	.01	.01	-.03	-.11	.07	.13	**.54**	-.01	.32
I sleep well	.05	-.03	.31	-.03	.04	-.07	**.33**	.04	.34
I worry about getting a job	-.04	.10	.01	.06	-.08	-.06	.02	**.49**	.27
I worry about my grades	-.10	-.10	.14	.06	.13	.30	.03	**.43**	.35
I worry about my weight	-.11	.04	-.07	-.10	.01	.05	-.19	**.42**	.29
I worry about violence happening nowadays	.10	-.06	-.01	.04	-.01	.24	.05	**.41**	.26
I worry about money	.12	.14	-.19	.10	-.14	.03	-.05	**.40**	.31
I am satisfied with my body shape	.21	-.08	.25	.11	-.01	-.06	.23	**-.34**	.44
%Variance explained	21.37	5.33	4.33	3.74	3.87	2.57	2.00	2.24	
Eigenvalues	10.46	3.28	2.43	2.08	2.03	1.69	1.61	1.41	
Extraction SSL	9.83	2.45	1.99	1.72	1.78	.118	0.92	1.03	
Rotation SSL	5.59	2.15	6.01	2.93	5.26	4.93	4.05	2.27	
Cronbach alpha	.85	.70	.84	.80	.82	.83	.69	.66	

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The first factor was Self-Appraisal and represented the way adolescents evaluate themselves with items relating to self-respect and having good qualities as well as the item "I feel happy". This result showed that across these two samples, the item measuring happiness (positive emotions) loaded onto Self-Appraisal. In the French solution, "I feel happy" was the leading item of the Self-Appraisal factor, while in the Australian solution this item accounted for less variance in the factor[36]. Inspection of means for this item in both samples indicated that the French participants (M = 4.82, SD = 1.07) reported significantly higher levels of happiness ($t(755) = 5.58$, $p < .001$) than the Australians (M = 4.41, SD = 0.94). Regarding the cognitive

[36] The loading of an item is indicative of the importance and variance accounted by this item in the factor.

items, loadings were higher for the Australian sample, however the mean scores between the two samples were similar overall, except for the item "I respect myself". This item presented with a loading 1.76 times higher in the Australian sample (M = 4.51, SD = 1.14) than in the French sample (M = 5.44, SD = 0.94), but the French students scored significantly higher on this item ($t(726) = 12.18$, $p < .001$). This could further support the idea that French adolescents may not rely heavily on cognitive aspects while self-evaluating.

The second factor was representative of Peer Satisfaction and encompassed the same items like the French version of the factor, except for "I exercise". This finding was more consistent with the intended construct of the Peer Satisfaction factor. The similarities between the Australian and French solutions supported the content validity of the domain. The items "I am part of a group of friends" and "I feel understood by my friends" had loadings below the .30 cut off but were maintained in the factor for theoretical reasons. Their inclusion was considered meaningful because these items pertained to the social inclusion and supporting aspects of friendships. Despite the differences in weight between the two solutions, participants recorded similar means on these items[37]. It was interesting to observe that the item "I feel understood by my friends" cross-loaded on the School Satisfaction factor. Considering the amount of time students spend at school, it was understandable that reporting a positive relationship with peers influenced their school experience.

The third factor measured Family Satisfaction and the first three items were the same in both the French and Australian solutions. Item loadings were higher for the Australian solution. The items relating to the relationship with father and with siblings met the criteria for inclusion

[37] Non-significant differences were not reported.

in the current study. These results differed from the French version, for which these two items were interpreted as loading on the Family Satisfaction factor, based on theoretical considerations of the construct. The item "I feel loved" loaded onto this factor. This finding differed from the French sample for which the item measured Self-Appraisal. Nonetheless, it was a meaningful finding because adolescents' family satisfaction could be related to their perception of being loved.

The fourth factor related to adolescents' Exposure to Bullying and encompassed the same items like the French version, with the same order of loading. The only notable difference was the weight of the item pertaining to violence, which was found to be 1.25 times higher in the Australian sample over the French sample. It was interesting to note that the French students (M = 2.95, SD = 1.50) scored significantly higher on the violence items than the Australian (M = 2.25, SD = 1.25) students, $t(733) = -6.95$, $p < .001$. Scores on the verbal abuse and exclusion item were similar. The frequency of bullying violence was lower than the midpoint[38] of the Likert-type scale, while the other forms of bullying appeared to be more prevalent for both settings.

The fifth factor was labelled School Satisfaction and included all intended items pertaining to this domain. The item loadings were broadly similar to the French solution but contained a few notable differences. The loadings of the Australian solution were higher, and they indicated that student-teacher relationships were important in the make-up of that factor. Australian adolescents scored significantly higher on "I feel understood by my teachers" (t(691)

[38] If the mean score obtained by the participants on the item was greater than the scale midpoint score, it indicated that the participants reported frequent occurrence of this behaviour.

= 10.69, $p < .001$; $M = 4.28$, $SD = 1.04$), and "I have a good relationship with my teachers" ($t(717) = 4.69$, $p < .001$; $M = 4.59$, $SD = 0.98$) than the French adolescents ($M = 3.30$, $SD = 1.45$; $M = 4.20$, $SD = 1.26$, respectively). The item "I feel safe at school" loaded onto this factor, which was not the case for the French sample, as this item had a higher loading on the Negative Emotions factor. Examinations of the means showed that the Australians ($M = 5.18$, $SD = 0.93$) scored significantly higher on this item than their French counterparts ($M = 4.10$, $SD = 1.58$), $t(618) = 11.45$, $p < .001$. To further explore this data, a comparison of frequencies of the French and Australian responses was conducted. Frequency counts showed that 19 percent of the French students felt between *never* and *rarely* safe at school, only 5 percent of Australian fell within this category. Although the endorsement of the bullying violence in both samples was low, the French score ($M = 2.95$; Australian score, $M = 2.32$) was approaching the midpoint of the scale. This could potentially explain the different pattern of loadings for adolescents' sense of insecurity at school and the loading of this item onto the Negative Emotions factor in the French sample. In addition, in the French sample, and contrary to expectations, the items "I eat healthy food" and "I feel calm" loaded onto the School Satisfaction factor. This finding was not reproduced in study 4. The Australian solution offered a clearer representation of the construct of School Satisfaction than the French solution.

The sixth factor referred to Negative Emotions and encompassed all intended negative emotion items. In contrast, in the French sample the item "I feel sad" loaded onto the Worries factor, and the item "I feel angry" presented its highest loading onto the Family Satisfaction factor. While some explanations have been provided for such findings, these items were intended to measure negative affect, and consequently the current Australian solution had a simpler structure. In addition, the French solution counted two items measuring body image and one item

relating to worry regarding violence. These results were not replicated in the Australian sample. The items “I feel calm”, “I get sick”, and “I skip school” also loaded onto the Australian version of Negative Emotions. The first two items could be related to Negative Emotions. However, the “I skip school” item was not retained in the final solution, while the other two were, to preserve simple factor structure.

The seventh factor measured Health Satisfaction and included four out of the five intended items as “I get sick” loaded onto the Negative Emotions factor. There were substantial differences between the French and the Australian solutions in relation to this factor. In the French version, the item “I exercise” loaded on the Peer Satisfaction factor, “I eat healthy food” clustered onto the School Satisfaction factor, and “I sleep well” presented its highest loading onto the Self-Appraisal factor. The item “I feel healthy” presented with a weight twice as strong in the Australian solution. However, the French students (M = 4.82, SD = 1.18) scored significantly higher on this item than the Australians (M = 3.89, SD = 1.17; $t(752) = -10.87$, $p <$ .001). The representation of the physical health construct was more meaningful in the Australian sample. Potential cultural explanations for the French findings are discussed later.

The eighth factor related to adolescents’ experience of worry and included all worry-related items as well as the items referring to body image satisfaction. The two leading items were the same, but their weights were more important in the Australian solution. The French adolescents (M = 3.84, SD = 1.40) reported significantly more worry relating to getting a job than the Australian adolescents (M = 3.43, SD = 1.51; $t(751) = -3.91$, $p <$ .001). In contrast, the Australian students (M = 4.85, SD = 1.11) reported significantly more worry about their grades than the French students (M = 4.32, SD = 1.35; $t(738) = 6.00$, $p <$ .001). The two items pertaining to body image loaded on this factor, which was different from the French solution

where these items loaded onto the Negative Emotions factor. The body shape item received similar scores across samples but the item referring to body weight showed Australians (M = 3.52, SD = 1.59) worried significantly more about their weight than the French (M = 2.97, SD = 1.73; $t(752) = 4.55$, $p < .001$). It was interesting to note that in both samples, students scored near the mid-point of the scale on the body shape item, while there were still reporting worries about their weight.

Correlations between factors and scores

Self-Appraisal (SA) was found to be significantly positively correlated with School Satisfaction (SS), Peer Satisfaction (PS), Family satisfaction (FS), Health Satisfaction (HS), and the overall score of the CAMWB. SA was also significantly negatively correlated with Exposure to Bullying (EB), Negative Emotions (NE), and Worries (W). SS was significantly positively correlated with FS, PS, HS, and the overall score of the CAMWB, and was significantly negatively correlated with NE, EB, and W. PS presented with a significant positive correlation with FS, HS, and the overall score of the CAMWB. Interestingly, PS was not significantly associated with EB, NE, and W. NE showed to be significantly positively correlated with EB and W, and significantly negatively correlated with FS, HS, and the overall score of the CAMWB. FS was significantly positively associated with HS and the overall score of the CAMWB, and significantly negatively associated with W. In turn, W was found to be significantly negatively correlated with HS and the overall score of the CAMWB. HS significantly positively correlated with the overall score of the CAMWB. Refer to Table 27.

Table 27

Pearson's product correlations along with means and standard deviations for the factors and the score of the CAMWB (N = 377)

	1	2	3	4	5	6	7	8	9
1. Self-Appraisal	4.40 (0.87)	.53**	.29***	.50***	-.55***	-.16**	.50***	-.36***	.78***
2. Family Satisfaction		4.57 (0.96)	.32***	.40***	-.38***	-.09	.37***	-.24***	.68***
3. Friend Satisfaction			4.30 (0.77)	.24***	-.06	-.03	.17**	.03	.42***
4. School Satisfaction				4.59 (0.70)	-.39***	-.23***	.39***	-.28***	.67***
5. Negative Emotions					3.31 (0.78)	.26***	-.44***	.47***	-.72***
6. Exposure to Bullying						2.97 (1.06)	-.15**	.16**	-.46***
7. Health Satisfaction							3.98 (0.84)	-.29***	.67***
8. Worries								3.63 (0.84)	-.57***
9. CAMWB									3.98 (0.47)

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

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Discussion

The aim of study 4 was to investigate the construct validity and internal consistency of the CAMWB using an Australian sample of high-school students. An EFA was conducted to investigate whether the intended latent variables were represented in the questionnaire and whether the results produced with the French sample were similar in an Australian sample. Cronbach's alphas were computed to assess the internal consistency of the factors and of the entire scale.

The first factor extracted from the EFA measured Self-Appraisal and, as previously discussed, was consistent with the current design of domain-specific well-being instruments. Core items loaded similarly on factors in both the French and Australian samples. Only their weights differed. Results suggested that Self-Appraisal in the French sample relied more on emotional aspects than did the Australian sample. French culture and social systems have been branded as emotional (Gaffney, 2004), consequently the importance of emotions within the culture may be reflected in cognitive self-evaluation. Further supporting this idea, Australia scored 18 points higher than France on Hofstede's cultural indicator of masculinity. The internal consistency of the Australian Self-Appraisal factor was higher (α =.85 *vs* α =.79) compared with the French version.

The second factor, Peer Satisfaction, showed similarities with the French solution. The items measured adolescents' sense of inclusion with their peers, perceived social support, and the social engagements adolescents attend with their friends. These friendship dimensions were identified as some of the key aspects of positive peer relationships (Kern, Benson, Steinberg, & Steinberg, 2016). Meaningful peer relationships were found to contribute to higher levels of SWB (Kern et al., 2015; Lawyer et al., 2015; Leung & Zhang, 2000; Oriol et al., 2017; Taylor, 2011). French students reported being involved in more social activities with their peers than their Australian counterparts. From a social modelling

standpoint, it was possible to speculate that French traditions around social gathering might have contributed to adolescents' involvement in social events. Supporting this comment are the scores of Australia and France on Hofstede's cultural indicator of individualism, with Australia scoring higher on this facet. Although very similar, the Australian version of the Peer Satisfaction factor (α =.70) was found to be slightly more reliable than the French one (α =.68).

The third factor referred to Family Satisfaction and included all intended items measuring family satisfaction, with the addition of the item "I feel loved". This factor measured satisfaction with interpersonal relationships within the nuclear family, and involvement in family activities. The French outcomes were not replicated, as the relationship with father and siblings items loaded onto this factor. Family satisfaction was suggested to be one of the strongest contributors to adolescent SWB (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Oriol et al., 2017). Means of both samples were similar and indicative of positive family relationships. The Australian version of the Family Satisfaction factor had higher internal consistency (α =.84) compared with the French version (α =.76).

Exposure to Bullying made up the fourth factor and included the same three items as in the French sample. For both samples, the verbal abuse and exclusion items presented with the highest loadings, and the prevalence of these behaviours was higher than the mid-point of the scale. In both samples, verbal bullying was more reported than physical bullying, which aligned with finding reported by Bayer et al. (2018) on an Australian sample. However, a notable difference was seen in the weight for the item relating to violence, which was higher for the Australian solution. Results showed that demonstrations of violence in the French sample were more frequent than in the Australian sample. This finding presented some incongruity with the prosocial behaviours displayed by the French adolescents, as indicated by their scores on the Peer Satisfaction factor. However, this could be the result of a greater

sense of ethnocentrism on the concept of in-group and out-group (Sumner, 1906; Tajfel, 1981; Tajfel & Turner, 1986). French individuals could display more prosocial behaviours within their in-group and simultaneously be more willing to engage in violent acts against the out-group members. Nonetheless, bullying-related violence was relatively low in both samples. The reliability of this factor was higher for the Australian sample (α =.80) over the French sample (α =.73).

The fifth factor, School Satisfaction, measured interpersonal relationships with teachers, a sense of community in the school, and enjoyment of the learning environment. Inspection of the loadings in both samples suggested relationships with teachers were more important to School Satisfaction for the Australian sample. Linking back to Hofstede's cultural indicators (1980), France scored 68 on power distance, while Australia scored 36 (out of 100). This was believed to be reflected in the education system. In France, students are only to address their teachers with the formal form "vous", which shows respect, but also creates a distance between the students and teachers. In addition, in France, teachers only teach one subject (e.g. mathematics, English, or philosophy), which means that student-teacher relationships are limited to that single subject interaction. In Australia, the student-teacher relationship appears to be more casual and teachers can teach more than one subject to the same group of students; in this way, the teacher is able to know different aspects of the student academic life. Furthermore, the notion of well-being at school has only been introduced recently in French schools, where the emphasis was always solely on academic performances (Coulangeon, 2018). As a consequence, relationships with teachers may have not grown enough to develop in a similar manner than in Australia. A report on a five-year longitudinal study in South Australia related that more than 90 percent of public schools participated in a well-being survey as the principals and school staff understood the value in knowing their students' well-being (Gregory et al., 2018). To further emphasise the

difference between school environments in France and Australia, 20 percent of the French sample reported not feeling safe at school while only five percent of Australians had the same feeling. It would appear that the Australian high-school developed a more successful sense of community within their learning environment. The Australian sample (α =.82) presented with higher internal consistency than the French sample (α =.76).

The sixth factor measured Negative Emotions with all intended items as well as the items "I feel calm" and "I get sick". The Australian version of the Negative Emotions factor was considered to present a simpler structure because it contained mostly items referring to negative affect, whereas the French version included items pertaining to body image and to today's level of violence. Negative affect is a key component of SWB (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984) and the emergence of psychological distress often happens during adolescence (Casas, Malo, Battaler, Gonzales, & Figuer, 2009; Keyes, 2006; Tomyn & Cummins, 2011). Consequently, the inclusion of a Negative Emotions factor was necessary for a measure of adolescent's SWB. The factor measuring negative emotions showed a higher Cronbach's alpha in the Australian sample (α =.83) than in the French sample (α =.73).

The external indicator of physical Health Satisfaction made up the seventh factor and included all intended health-related items except for "I get sick", which loaded on the Negative Emotions factor. Sleep quality and practice of exercise were identified as contributors to positive reports of health and as such, items measuring these behaviours were included in this factor (Eime, Young, Harvey, Charity, & Payne, 2013; Gradisar, Gardner, & Dohnt, 2011). This factor had only a single item in common with the French item "I feel healthy". This item accounted for more variance in the health factor for the Australian solution, however the French students reported higher scores on this item. The French health factor counted only two out of the five items intended to design health and the item "I skip

school". While the interpretation of the French solution could be explained, the Australian solution had a far simpler structure. It was suggested that the Australian version of the health factor had more content validity. Physical health was recognised as a key aspect of an individual's well-being (Chan, 2015), and for adolescents, for whom the literature pointed to as experiencing growing issues of internalisation (Koteles, Freyler, Kokonyei, & Bardos, 2015; Gullone & Cummins, 1999), it was important that a measure of SWB included a factor of Health Satisfaction. Similar to the other factors, the Australian version of this factor had higher reliability (α =.69) than the French version (α =.59).

The last factor, Worries, measured adolescents' concerns over academic performances, finances, violence, and body image. In the French sample, this factor had a narrower focus towards academic and professional future. Previous research showed that adolescents worry about a variety of domains (Fisher, Keogh, & Eccleston, 2016; Silverman, Greca, & Wasserstein, 1995; Tang & Westwood, 2007; Tikkanen, 2016), with academic worry being the most important (Lauermann, Eccles, & Pekrun, 2017, Silverman et al., 1995; Tang & Westwood, 2007). In both samples, worries relating to professional life and grades were the leading items. French students reported more worries regarding their job prospects than Australians, while Australians worried more about their academic performances. Unemployment rates in France were at nine percent for the last trimester of 2018 for the overall population, and at 21 percent for the 15-24 age range. In contrast, Australian's rate was a stable five per cent in the last trimester of 2018 (ABS). France was shown to score much higher than Australia on Hofstede's cultural indicators of uncertainty avoidance. Consequently, French students might have been more worried about the lack of opportunities awaiting their school graduation.

In regard to worries related to academic performances, two factors could contribute to this result. The first explanation for the difference could be found in the Australian sample

surveyed. The Australian participants were sourced from a selective entry high-school, where the school culture was competitive. The second difference between the two samples concerning academic worries could be influenced by the difference in pathways to university entry. Until 2018, scores on the French Baccalaureate did not determine entry to any university program. As such, the aim was to successfully pass the exam and not necessarily achieve great scores. In a similar manner, grades during the whole year did not contribute to the final exam score. Consequently, French students might not have worried as much as their Australians counterparts about their yearly results.

There were also differences noted on worry related to body weight. It was interesting to observe that both samples scored higher than the midpoint of the scale when asked about their body shape, but Australian adolescents had more concerns over their weight. Compared with France, Australian weather offers more opportunity for young individuals to go to the beach or wear lighter clothing. Potentially the fact that the weather allows for lighter clothing may create body-related concerns for young individuals. Figures regarding weight issues could also explain this result. Some 20 percent of all children between the ages of five and 17 were reported to be overweight, and an additional seven per cent fell within the obese classification (ABS, 2015). In France, 18 percent of children aged between three and 17 were categorised as overweight, while three per cent met the criteria for obesity (Castetbon, 2015). This difference in prevalence rate could have been reflected in the scores. This finding further supported the idea that French adolescent felt healthier than their Australian homologues. In both samples, the worry factor presented with the lowest internal consistency of all factors, with worry in the Australian sample showing a Cronbach alpha of .66 as compared to .56 in the French sample.

In both the Australian and the French sample, the best-fit solution presented eight factors rather than nine, as the solutions did not yield a factor measuring Positive Emotions.

However, the organisation of the items intended to measure positive emotions in the Australian sample was different from the one for the French sample. In both samples, the item “I feel happy” loaded onto the Self-Appraisal factor. The item “I feel loved” loaded onto Family Satisfaction, whereas this item grouped with the factor of Self-Appraisal in the French sample. Both outcomes were considered to be meaningful, as the experience of being loved would be an important aspect of family satisfaction and could also contribute to a positive self-evaluation. The third item intended to measure positive emotions “I feel calm” presented with a negative loading onto Negative Emotions in this study, while it clustered with the school satisfaction items in the French sample. As expressed in study 3, sense of calm could be related to School Satisfaction, however, the Australian outcome might be easier to interpret, as the experience of negative emotions could be more easily related to a lack of sense of calm.

The lack of representation of a Positive Emotions factor contradicted the traditional model of SWB (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984). However, this model was developed on adult populations and consequently might not adequately measure adolescent SWB. It was possible that for adolescents, the experience of positive emotions was linked to specific domains of life. To date, there was no universally accepted model of adolescent SWB; it was therefore in the interest of SWB research to pursue this investigation to better understand the role of positive affect among youth. Furthermore, the fact that the CAMWB only counted three positive emotion items might have been a limitation for the formation of a single Positive Emotions factor (Kern, Waters, Adler, &White, 2015; refer back to study 3) and accordingly, it was concluded that future research may want to address this limitation.

In summary, the CAMWB appeared to be an appropriate measure of adolescent SWB. The multidimensional aspect of the instrument allowed for a more comprehensive evaluation of SWB (Kern et al., 2015). Examination of the literature led to the conclusion that the CAMWB was one of the first instruments developed using cross-cultural samples measuring adolescent' SWB across a variety of indicators. Some cross-cultural differences in the structure of factors were noted, however the domains were similar. A closer inspection of the factor structure demonstrated that the Australian solution offered a more concise and neater measurement of the life domains. Additionally, comparisons of the reliability between the French and Australian solutions consistently showed the Australian solution to be stronger. The following study sought to confirm the construct validity and establish the convergent, divergent and criterion validity.

Study 5: Establishing the psychometrics of the CAMWB with the French and Australian samples

Studies 3 and 4 tested the construct validity of the instrument with a French and an Australian sample. The analyses demonstrated an eight-factor structure, namely Self-Appraisal, School Satisfaction, Friendship Satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Dissatisfaction/ Satisfaction[39], and Worries. These factors mapped the intended domains of Subjective Well-Being (SWB) in a manner that aligned with previous literature (Andrews & Withey, 1976; Argyle, 1987; Bradburn; 1969; Diener, 1984; Diener & Larsen, 1984). Patterns of associations between factors were presented in both study 3 and study 4, which used a sample of 385 French high school students and a sample of 377 Australian high school students, respectively. Study 5 sought to extend on the work conducted in previous studies (study 3 and 4) by examining how the pattern of correlations between factors change with age. In other words, studies 3 and 4 were conducted on the older cohorts of students, while in study 5, data was collected from both young and old cohorts. An additional 254 middle school students were recruited and were added to the French sample used in study 5, bringing the total French sample size to 639 students. Similarly, an additional 337 students were recruited and were added to the previously used Australian sample, which brought the total Australian sample size to 714 students.

In addition, this study aimed to confirm the results of studies 3 and 4 by performing a Confirmatory Factor Analysis (CFA) using all participants from the French and Australian samples. CFA is a theory-driven confirmatory technique that tests the hypothesis that a previously identified latent factor structure agrees with the latent structure of covariance

[39] In the French sample, the factor related to health measured dissatisfaction, while in the Australian solution, the health factor measured satisfaction.

within a given sample (Schreiber, Nora, Stage, Bralow, & King, 2006). This means that CFA allows testing whether relationships between measured variables (domains of SWB) and latent variable (SWB) exist as predicted. There are three main criteria to evaluate the results of a CFA: goodness-of-fit chi-square, fit indices and analysis of residuals. Assessment of the model fit is indicated by the chi-square goodness-of-fit that estimates how the data maps to the specified model. Although, the chi-square is the traditional measure to evaluate the fit of a model, its use has been criticised due to severe limitations (Bentler & Bonett, 1980; Chen, 2007; Cheung & Rensvold, 2002; Hooper, Coughlan, & Mullen, 2008; Marsh, Balla, & McDonald, 1988). The chi-square statistic relies on multivariate normality, and violation of this assumption may incur rejection of the model (McIntosh, 2006). Additionally, the chi-square is highly sensitive to sample size, and larger samples (> 400) almost always see their chi-square become significant (Bentler & Bonett, 1980; Joreskog & Sorbom, 1993). Furthermore, the magnitude of the correlations between variables also affect the chi-square - the stronger the correlations, the poorer the fit (Kenny, 2015). A rule of thumb can be applied to correct the sensitivity of the chi-square. If a value of 5 or below is obtained by dividing the chi-square value by the degrees of freedom, the fit can be considered adequate (Bollen & Long, 1993). However, fit indices have been argued to provide further and more useful information on the "goodness-of-fit" of the model (Bentler, 1990).

There are several fit indices available, and authors have argued the report of different ones (Schreiber et al., 2006). Hu and Bentler (1999) suggested to report the Standardised Root Mean Squared Residual (SRMR), Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA). A review from McDonald and Ho (2002) found that the most commonly reported in the literature were Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI; Joreskog & Sorbom, 1981), Normed-Fit Index (NFI) and Non-Normed Fit Index (NNFI). Following these recommendations, this study reported the aforementioned indices.

The NFI (Bentler & Bonett, 1980) tests the specified model against the null model (worst possible model, where all variables share no variance at all). Initial recommendations pointed towards a minimum value of .90 (Bentler & Bonett, 1980), but more recently .95 was suggested as a better standard (Hu & Bentler, 1999). However, the NFI is sensitive to sample size (Bentler, 1990) and to the number of parameters entered in the model (Kenny, 2015). These issues were addressed by the NNFI, also called TLI. The TLI value can go above 1, as it is non-normed, and this can result in issues with interpretation (Byrne, 1998). Cut-off values were proposed to be similar than for the NFI (Hu & Bentler, 1999), but it was suggested that cut off could go as low as .80 (Hooper et al., 2008). The CFI (Bentler, 1990) is another revised version of the NFI that considers sample size (Tabachnick & Fidell, 2007). The CFI is interpreted using the same cut-off as the NFI and TLI. The GFI is one of the earliest fit metrics comparing the informed model with the null (Joreskog & Sorbom, 1981). The interpretation of the GFI used a similar approach to that used for the previous indices, with .95 indicating a good fit (Miles & Shevlin, 1998).

In regard to the analysis of residual, the RMSEA (Steiger, 1989) is regarded as one of the most useful indicators of fit (Diamantopoulos & Siguaw, 2000). The RMSEA estimates the residual of the fitted model (Byrne, 1998). Cut-off values used to be set between .08 and .10 for a mediocre fit and below .08 for an acceptable fit (MacCallum, Browne, & Sugawara, 1996). Recent recommendations were more stringent with the cut-off set between .06 and .07 (Hu & Bentler, 1999; Steiger, 2007).

The SRMR is another index of residual, it is the standardised difference between the predicted correlations and the observed correlations in the model (Hooper et al., 2008). Acceptable cut-off values range between 0 and .08 (Byrne, 1998; Diamanpoulos & Siguaw, 2000; Hu & Bentler, 1999). The current study presented all these estimates to evaluate the French and Australian models of SWB.

Once construct validity of the instrument had been established, guidelines regarding the development of instruments indicated that the convergent, divergent, and criterion validity should be investigated (DeVellis, 2012). Convergent validity referred to the degree to which the newly developed instrument related to an established scale measuring the same construct. In the current study, two instruments were used to establish convergent validity. These included two measures of well-being, the Brief Multidimensional Student Life Satisfaction Scale - Peabody Treatment Progress Battery version (BMSLSS - PTPB; Bickman et al., 2010) and the Personal Well-being Inventory- School Children (PWI-SC; Cumming & Lau, 2005). It was recommended to use instruments measuring the same construct to establish convergent validity (DeVellis, 2012), as it allowed to test whether the intended construct was in fact measured by the newly developed instrument.

Divergent validity, which was the way the newly developed instrument related to an opposite construct, was investigated using a measure of depression, the Kutcher Adolescent Depression Scale – six items (KADS-6; LeBlanc, Almudevar, Brooks & Kutcher, 2002). The evidence presented in chapter two regarding the associations between depression and SWB indicated that using a measure of depression to establish divergent validity was an appropriate approach.

Criterion validity referred to the degree to which the newly developed instrument related to an outcome variable (DeVellis, 2012). Criterion validity could be established via concurrent and/or predictive validity. For concurrent validity, measurements of two variables needed to be taken contemporaneously. For predictive validity, the individual was assessed on one measure at a given time and was assessed on the second measure later in time, with the objective of predicting the second score based on the first measurement. The study sought to establish concurrent validity as both the CAMWB and the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) were administered at the same point in time. The reported

correlations between self-esteem and SWB from previous studies (refer to chapter 2) demonstrated the consistent association between the two variables and supported the choice of self-esteem to establish concurrent validity. The instruments used were established in the adolescent SWB literature and were selected for this reason.

Study 5 sought to confirm the construct validity of the CAMWB using two CFAs. Furthermore, convergent, divergent, and criterion validities were tested.

It was also hypothesised that an eight-factor structure for the CAMWB would be confirmed by the CFAs in both samples, suggested by up to standard model fit indicators. Differences in path weight coefficients were expected between France and Australia in their model of adolescent SWB, reflecting cultural differences. In addition, it was hypothesised that the CAMWB and the positive subscales of the CAMWB would share positive moderate significant correlations with the BMSLSS- PTBD, the PWI-SC and the RSES. In contrast, it was predicted that the CAMWB and negative subscales of the CAMWB would share negative moderate significant correlations with the BMSLSS- PTBD, the PWI-SC and the RSES. Furthermore, it was predicted that the CAMWB and negative subscales of the CAMWB would share positive moderate significant correlations with the KADS-6. It was also hypothesised that the CAMWB and the positive subscales of the CAMWB would share negative moderate significant correlations with the KADS-6.

Method

Participants

French sample

The survey duration had to fit a time frame prescribed by the schools. As a consequence, some schools did not have access to all instruments (refer to chapter 3). An additional 254 middle school students (111 females, 141 males, and 2 not specified) were

recruited from four different institutions and were added to the French sample used in study 3. This brought the total French sample size to 639 students (*M* = 14.13, *SD* = 2.02). Participants (*M* = 12.16, *SD* = 1.78) from these middle schools were significantly younger than those from the high school (*M* = 15.43, *SD* = 0.67) used in Study 3 (*t*(299) = 27.82, *p* <.001). Table 28 presents the breakdown of the participants.

Table 28

Sampling sites, participants characteristics and instruments completed for the French sample

Site	*N* (females) not specified	Age range	*M* (SD)	Instruments
Site 1[a]	54 (18) 0	10-11	10.20 (0.41)	CAMWB-FR, PWI, BMLSS-PTBD
Site 2 [b]	66 (38) 0	10-16	12.81 (1.39)	CAMWB-FR, PWI, BMLSS-PTBD, RSES, KADS
Site 3[b]	80 (53) 0	11-16	13.14 (1.49)	CAMWB-FR, PWI, BMLSS-PTBD, RSES, KADS
Site 4[b]	49 (23) 2	10-16	11.61 (1.35)	CAMWB-FR, RSES, A-COPE
Site 5[c]	385 (234) 4	14-17	15.43 (0.67)	CAMWB-FR, PWI, KADS, A-COPE

Note. Subscript a denotes a primary school, Subscript b denotes middle school, and c denotes a high school. An additional five participants did not specify their school.
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Australian sample

Although the intention was to survey participants from several sample sites, only one school agreed to participate in this part of the research. Similar to the French setting, there

was a restricted time allocated to complete the questionnaire, and as a consequence, instruments were partially counter-balanced to each sample. An additional 337 students (173 females, 156 males, and 8 not specified) from lower grade levels were recruited in the same high-school in Victoria used in study 4 and were added to the previous sample. This brought the total Australian sample size to 714 students (M = 15.28, SD = 1.08). Students from year 9 and 10 were significantly younger than students from year 11 used in Study 4 ($t(684)$ = 24.94, p <.001). Table 29 presents the breakdown of the participants.

Table 29

Year levels, participants characteristics and instruments completed for the Australian sample

Year Level	*N* (females) not specified	Age range	*M* (SD)	Instruments
Year 11	377 (203) 9	14-18	16.01 (0.87)	CAMWB-EN, RSES, KADS, A-COPE
Year 9-10	337 (173) 8	12-18	14.51 (0.69)	CAMWB-EN, PWI, BMLSS-PTBD, KADS, A-COPE

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Materials

This section presents the instruments used during this phase of the pilot study, the CAMWB, the BMSLSS- PTPB, the PWI-SC, the KADS-5 and the A-COPE. The BMSLSS is presented along with the BMSLSS-PTPB as the alternate form.

Comprehensive Adolescent Measure of Well-Being (CAMWB; Rault, Unpublished).

The multidimensional self-report instrument measured adolescent SWB across several domains including Self-Appraisal, Peer Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Negative Emotions, Health Satisfaction/ Dissatisfaction, and Worries. Participants were asked to rate their level of agreement with the items on a Likert-type response scale ranging from 1 *Never* to 6 *All the time.* Higher scores on the scale indicated higher levels of well-being and for each subscale higher scores indicating higher levels of the construct being measured. The scoring of the Australian instrument was based on 45 items, while the French version only included 44 items[40] (refer to study 3 and 4).

Items were generated based on prior literature and open-ended questionnaires using a focus groups of students from Australia. A panel of experts in Australia and France reviewed the items and assisted with further item generation. The questionnaire was translated and back-translated to ensure its validity cross-culturally. The latest version of the CAMWB was piloted by a group of young French students and was found to be an adequate measure of adolescent's SWB. Construct validity was tested in a French and an Australian sample. Cronbach's alpha for the factors ranged between .56 and 79 for the French sample and between .66 and .85 for the Australian sample. The overall Cronbach's alpha for the scale was .84 for the French sample and .91 for the Australian sample.

[40] Mean scale scores were used therefore the disparity in items did not overly influence interpretation.

Brief Multidimensional Students Life Satisfaction Scale (BMSLSS; Seligson, Huebner, &Valois, 2003).

This five-item self-report measures life satisfaction across five domains of life: Family, Friend, School, Oneself, and Living Environment. This instrument was designed to contribute to the literature by providing a brief multidimensional measure of life satisfaction, based on the 40-item Multidimensional Students Life Satisfaction Scale (MSLSS; Huebner, 1994). Participants' responses were recorded on the *Terrible* (1) – *Delighted* (7) scale (Andrews & Whitey, 1976) for items such as "I would describe my satisfaction with my friendships as". Items were summed to form a total score of general life satisfaction, with higher scores denoting higher satisfaction. The BMSLSS was initially normed using two USA-based adolescent samples (N = 221, M_{age} = 12.33 and N = 46, M_{age} = 15.65; Seligson, Huebner, & Valois, 2003). The BMSLSS was often used concurrently with the rating of Global Life Satisfaction Scale (GLLS; Seligson et al., 2002), which was a single item rating overall life satisfaction (Hashim & Areepattamanil, 2017; Seligson, Huebner, & Valois, 2005; Siyez & Kaya, 2008). Table 30 presents data for the original norming sample and a study using the BMSLSS concurrently with the GLLS (i.e. Seligson et al., 2005).

Investigation into construct validity yielded a one-factor solution accounting for 44 percent of the variance with an USA-based sample (Seligson et al., 2005) and 48 percent using a Turkish sample (Siyez & Kaya, 2008). CFA confirmed that a one-factor solution best fitted the data, and this was found to be invariant across gender in India (Hashim & Areepattamanil, 2017). Construct validity was also demonstrated with the positive factor (r = .43) and the negative factor (r = - .27) of the Positive and Negative Affect Schedule - Children (PANAS-C; Laurent et al., 1999). Convergent validity was shown with the MSLSS (r = .66) and the Student Life Satisfaction Scale (r = .62; Seligson et al., 2003). Additionally,

domains of the BMSLSS and the MSLSS correlated between .47 and .60. Criterion validity was established using the single GLLS item and the five items of the BMSLSS were shown to be significant predictors of the GLLS, with standardised beta weights ranging from .25 to .36 (Seligson et al., 2003). Inter-item correlations ranged between .65 and .73, which was satisfactory (Seligson et al., 2003). Internal consistency of the scale was reported to be satisfactory with a Cronbach's alpha ranging from .68 (Seligson et al., 2005) to .75 (Seligson et al., 2003). The test-retest reliability over a two-week period was found to be excellent, using an Indian sample (r = .94; Hashim & Areepattamanil, 2017) and using a Turkish sample (r = .82, Siyez & Kaya, 2008).

As stated in study 2, the translation and back-translation of the BMSLSS in French were problematic because the language did not feel natural, nor did the choice of responses work in a French context. Additionally, educational staff reported that the level of language of the original instrument was too complex once translated into French. To remedy this issue, the current research used the Peabody Treatment Progress Battery version of the BMLSS (BMSLSS-PTPB, Bickman et al., 2010), which was an alternate form of the BMLSS. Bickman and colleagues started a broad project to create a collection of instruments that would be brief and clinically useful in assessing adolescent mental health (Riemer et al., 2012). The BMSLSS-PTPB was part of this initiative. The norming sample of the BMSLSS-PTPB was 694 adolescents aged between 11 and 18 (M = 14.70, SD = 2.60), 48 percent of whom were females (Athay & Kelley, 2012).

Response choices of the BMSLSS, which were found to be semantically problematic in the French sample, were also shown to lack distinctiveness according to Item Response Theory analysis (Bickman et al., 2010). As a result, the PTPB version modified the *Terrible* to *Delighted* seven-point Likert-type scale and simplified item content to meet the vocabulary

level of the target population. With the BMSLSS-PTPB, participants were asked to rate their degree of satisfaction from 1 *Very unsatisfied* to 5 *Very satisfied* on items such as "Are you satisfied with your friendships". All items were positively worded and there was no time limit within which to complete the questionnaire. Items were averaged out and summed to obtain the total score, where a high score indicated higher satisfaction with life. The scores on the BMSLSS-PTPB could be classified into three categories: low (< 3.3), medium (> 3.3 and < 4.5) and high (> 4.5; Athay, Kelley, & Dew-Reeves, 2012).

Internal consistency for the BMSLSS-PTPB was found to be similar to that for its original form ($\alpha = .77$; Bickman et al., 2010). Inter-item correlations were also comparable with the original items with correlations ranging from .40 to .78. The use of IRT analysis showed that the items had discrimination values close to 1, meaning that the items were able to discriminate between high and low life satisfaction among adolescents. Convergent validity was established with the Children's Hope Scale-PTPB edition (CHS-PTPB; Bickman et al., 2010) and the Symptoms and Functioning Severity Scale (SFSS; Bickman et al., 2010), which showed correlations of .40 and -.36, respectively. The Treatment Outcome Expectations Scale (TOES; Bickman et al., 2010) was used to demonstrate discriminant validity ($r = .08$). Construct validity was confirmed by a CFA and similar to the BMSLSS, the BMSLSS-PTPB version loaded onto one factor (Athay et al., 2012).

The BMSLSS and BMSLSS-PTPB had not previously been used in a French nor an Australian sample. Study 5 added to the literature by presenting psychometrics for these populations. Table 30 presents the mean scores and standard deviations for each item from the original norming population of the original norming population of the BMSLSS, a study in which the item related to overall life was added, the norming population of the BMSLSS-PTPB, the French and the Australian sample used in this study.

Table 30

Means, Standard deviations and Cronbach alphas for the BMSLSS and the BMSLSS- PTPB

How satisfied or dissatisfied are you with…	Seligson, Huebner, & Valois, 2003[a] *N* = 221 93 fem M_{age} = 12.33	Seligson, Huebner, & Valois, 2005[a] *N* = 516 274 fem M_{age} = 9.34	Bickman et al, 2010 *N* = 694 333 fem M_{age} = 14.70	Current study French sample *N* = 143 63 fem M_{age} = 12.15	Current Australian sample *N* = 260 143 fem M_{age} = 14.60
Your family life	4.21 (0.94)	4.20 (1.01)	3.17 (1.27)	4.05 (1.42)	3.80 (1.18)
Your friendships	4.20 (0.93)	4.21 (0.99)	4.09 (1.13)	4.26 (1.24)	4.08 (0.96)
Your school experience	3.76 (1.01)	3.94 (1.06)	3.47 (1.32)	3.88 (1.30)	3.84 (0.94)
Yourself	4.33 (0.91)	4.20 (0.96)	3.96 (1.22)	4.06 (1.32)	3.36 (1.11)
Where you live	4.02 (1.06)	4.41 (0.96)	3.83 (1.36)	4.35 (23)	4.15 (0.91)
Your overall life	NA	4.14 (1.00)	3.79 (1.18)	4.22 (1.29)	3.75 (0.97)
Total score	4.11 (0.69)[b]	4.20 (0.66)	3.81 (0.85)	4.13 (1.01)	3.83 (0.71)
Cronbach's α	.75[b]	.76	.77	.87	.78

Note. [a] denotes studies using the original BMSLSS items and scoring, as accordingly scaling from a 7-points to a 5-point Likert scale was conducted. [b] indicated that the total score and the Cronbach alpha were calculated on the first five items only.
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Personnel Well-Being Index- School Children (PWI-SC; Cumming & Lau, 2005).

This seven-item instrument is a parallel for of the PWI-Adult. It measures SWB on seven domains of life. These were Standard of Living, Personal Health, Achievement in Life,

Personal Relationships, Personal Safety, Feeling part of the Community, and Future Security. Participants were asked to rate their level of happiness on a scale ranging from 0 *Very sad* to 10 *Very happy*. All items were positively worded, and the instruction manual did not prescribe a time limit to complete the questionnaire. For ease of interpretation and comparison with other scales, the PWI raw scores were converted into a percentage of scale maximum. The scores could therefore be interpreted on a scale from 0 to 100. The formula for the conversion was;

$$\frac{X - k\,min}{k\,\max - k\,min} \times 100,$$

where x was the true score, k min was minimum score possible on the scale, and k max was maximum score possible on the scale.

The PWI-A was an adaptation of the ComQol, which measured importance and satisfaction with specific subjective and objective life-domains. Despite the ComQol being considered a useful measure in the field of well-being, the scoring of the ComQol was quite complex, involving multiplicative scores of importance and satisfaction from specific life domains (Lau, Cummins, & McPherson, 2005). In addition, the ComQol incorporated objective indicators, which were not reliable for the measure of SWB (Lau et al., 2005). The PWI-A addressed the limitations of the ComQol by focussing on satisfaction with life domains (Lau et al., 2005). One of the noted limitations of the PWI-A was the lack of an affect domain for the measurement of SWB. However, some later versions of the scale have included an item pertaining to the ‘satisfaction with happiness’ (Lau et al., 2005). The PWI-A simplified the measurement of SWB by dismissing the important indicators and relying solely on the subjective components of well-being.

In the PWI-SC, the language of the instrument was adapted to the target population. The term “happy with” replaced “satisfied” and age-appropriate terms were used (e.g.

"Getting on with the people you know" when referring to personal relationships). While the PWI-A contained eight items, the item referring to spirituality and religion was not included in the children form of the instrument. The PWI-SC was validated on a sample of 338 high-school students from Victoria, Australia (Tomyn & Cummins, 2011). Age ranged from 12 to 20 (M = 15.70, SD = 1.75) and 33 percent of the sample (118) were male. The scores obtained by the adolescents were similar to those of the adult range, except for the Achievement and the Community connectedness domains. For the first domain, adolescents scored significantly lower while on the second domain they scored significantly higher than the adults.

A principal component factor analysis confirmed a single factor solution intended by the authors. This finding was replicated in several studies (Casas, Tiliouine, & Figuer, 2014; Tomyn, Fuller Tyszkiewicz, & Cummins, 2013; Tomyn, Fuller Tyszkiewicz, Cummins, & Norrish, 2017; Tomyn, Weinberg, & Cummins, 2015). Convergent validity was established using the General Life Happiness (GLH) scale, which is an adaptation of the item devised by Andrew and Whitey's (1976) that pertained to feeling about life in general. Correlations between the total score of PWI-SC and the GLH were found to be moderate to strong ranging from .53 to .65 (Tomyn et al., 2017). In a similar manner, each of the domains of PWI-SC correlated between .32 to .53 with the GLH (Tomyn et al., 2015). In addition, the correlation between the PWI-SC and the Overall Life Satisfaction single item (OLS) was .60, which was highly satisfactory (Casas et al., 2014). Internal consistency of .82 was reported, which was similar to previous reports of the internal consistency for the PWI-A (Tomyn & Cummins, 2011; Tomyn et al., 2013). A study using samples of adolescents from Spain and Romania yielded Cronbach's alpha of .88 and .90, respectively (Casas, Baltatescu, Bertran, Gonzales, & Hatos, 2013). The current study employed the original version of the PWI-SC, which only counted seven items, as prescribed in the manual. Table 31 presents the norming population

used for the PWI-SC, a more recent study using the PWI-SC, a study using the PWI-SC on European participants, and the data from the French and the Australian sample.

Table 31

Means, Standard deviations and Cronbach alphas for the PWI-SC

How satisfied are you with	Tomyn & Cummins, 2010[a] *N* = 338 226 fem. M_{age} = 15.70	Tomyn et al., 2013[a] *N* = 678 129 fem. M_{age} = 14.30	Casas et al., 2013[b] *N* = 2875 1485 fem.	Current French sample *N* = 527 202 fem M_{age} = 14.49	Current Australian sample *N* = 259 141 fem M_{age} = 14.59
The things you have?	73.90	79.04 (18.71)	84.50	81.27 (19.72)	72.81 (20.21)
Your health?	73.10	76.53 (21.20)	83.50	44.18 (34.44)	64.08 (23.49)
The things you want to be good at?	69.10	73.48 (19.06)	78.10	48.73 (29.91)	64.81 (22.10)
About getting on with the people you know?	80.10	79.19 (17.54)	82.40	41.00 (32.26)	73.89 (19.86)
About how safe you feel?	81.40	80.58 (17.52)	78.40	43.45 (30.87)	75.37 (20.27)
About doing things away from your home?	75.50	79.31 (18.32)	84.70	47.88 (31.04)	73.31 (19.61)
About what may happen to you later in life?	73.60	72.17 (20.11)	76.50	35.65 (29.09)	64.39 (21.51)
PWI-SC	74.70	77.18 (13.05)	81.14	50.99 (21.59)	69.79(15.52)
Cronbach's α	.82	.82	.88 - .90	.85	.86

Note. Superscript a denotes of the use of Australian samples, superscript b denotes of the use of European sample (Romania and Spain). Created by the author, Camille Rault, 2020.

Kutcher Adolescent Depression Scale - six items (KADS-6; LeBlanc, Almudevar, Brooks & Kutcher, 2002).

This six-item self-report was designed by paediatricians and adolescent mental health specialists to identify and monitor depression in adolescents (LeBlanc, Almudevar, Brooks, & Kutcher, 2002; Quintao, Davod, Gusmao, & Kutcher, 2015). There are three versions of this instrument: KADS-16, KADS-11 and KADS-6. Participants were asked to rate their answers on items pertaining to negative feelings experienced over the past week on a four-point Likert-type scale ranging from 0 *Hardly Ever* to 3 *Much of the time.* All items expressed negative emotional valence and an example from the KADS-6 was "Feeling worthless, hopeless, letting people down, not being a good person". Items were summed together to obtain a total score, with higher scores indicating symptoms of depression. The three versions of the KADS were normed on a population aged between 12 and 20 (LeBlanc et al., 2002).

EFA confirmed the unidimensionality of the KADS-6 and showed that the solution explained 49 percent of the variance (Quintao et al., 2015). Convergent validity was established with the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) and with the Child Depression Inventory (Kovacs, 1985) and yielded correlations of .60 and .61, respectively (Quintao et al., 2015). KADS-6 was also able to significantly differentiate between clinical and non-clinical samples of adolescents (Quintao et al., 2015). In terms of criterion score, a cut-off score of 6 was provided by the designers of the scale for sensitivity rates of 92 percent and specificity rates of 71 percent (LeBlanc et al., 2002). The internal consistency of the KADS-6 was found to be satisfactory, α =.80 (Brooks, Krulewicz & Kutcher, 2003; LeBlanc et al., 2002; Quintao et al., 2015). The KADS-6 presented excellent psychometrics and has been reported to be user-friendly considering its short length. Although, the KADS-6 had been translated into French, there had been no data regarding the

use of the KADS-6 to date on a French sample. Similarly, no study was found in the literature regarding the use of the KADS-6 on the Australian population. Study 5 did not include the last item of the KADS-6 “Thoughts, plans or actions about suicide or self-harm”, as it was considered too high-risk and not related to the aim of the study. Despite this, study 5 contributed to the literature by presenting psychometrics for an abbreviated version of the KADS-6 in a French and an Australian sample. Table 32 presents the mean scores and standard deviations for each item from the original norming population and the French and the Australian sample used in this study.

Table 32

Means and Standard deviations for the KADS-5

Item	LeBlanc et al., 2002 *N* = 161 113 fem M_{age} =15.1	Current French sample *N* = 527 202 fem M_{age} = 14.49	Current Australian sample *N* = 259 141 fem M_{age} = 14.59
Low mood, sadness, feeling blah or down, depressed, just can't be bothered	0.93 (0.87)	0.63 (0.82)	0.99 (0.89)
Feeling of worthlessness, hopelessness, letting people down, not being a good person	0.78 (0.91)	0.61 (0.91)	0.78 (0.91)
Feeling tired, feeling fatigued, low energy, hard to get motivated, have to push to get things done, want to rest or lie down a lot	1.22 (0.98)	0.99 (1.00)	1.31 (0.96)
Feeling like life is not very much fun, not feeling good when usually would feel good (before getting sick), not getting as much pleasure from fun things as usual	0.66 (0.79)	0.42 (0.79)	0.80 (0.91)
Feeling worried, nervous, panicky, tense, keyed up, anxious	0.99 (1.00)	0.78 (0.98)	0.98 (0.92)
Total score	4.58 (4.55)	3.43 (3.60)	4.86 (4.59)
Cronbach’s α	.80	.76	.86

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Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965).

This ten-item self-report instrument measured global self-worth of individuals. Participants were asked to rate their degree of agreement on a 4-point Likert-type scale ranging from 1 *Strongly disagree* to 4 *Strongly agree* on items such as "On the whole, I am satisfied with myself". It included five negatively worded items. Scores on the RSES have a possible range of 10 to 40, with higher scores on the scale indicating higher self-worth appraisal.

The face validity of the RSES was reported to be excellent and this contributed to its success in the field of research (Blascovich & Tomaka, 1991; Tafarodi & Milne, 2002; Webster, Smith, Brunell, Paddock, & Nezlek, 2017). Construct validity of the scale has been thoroughly studied in the field and yielded mixed results. Some researchers advocated for the unidimensionality of the measure (Hensley, 1977; Simpson & Boyle, 1975) while others (Kaplan & Pokorny, 1969; Shahani, Dipboye, & Phillips, 1980; Owens, 1993) found a better fit with a two-factor structure, one positive and one negative. However, this claim was dismissed by some as an artefact due to the response set of the positively and negatively worded items (Carmines & Zeller, 1974; Zeller & Carmines; 1980). Others argued for a meaningful differentiation between positive self-worth and negative self-deprecation (Shahani et al., 1980; Owens, 1993; Owens, 1994; Tafarodi & Milne, 2002). The findings of CFA (Shelvin, Bunting, & Lewis, 1995) and IRT (Gray-Little, Williams, & Hancock, 1997) tended to converge towards a one-factor solution. However, these results were debated (Tafarodi & Milne, 2002). In terms of convergent and divergent validity, the RSES correlated with life satisfaction (r = .32, Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995), happiness (r = .50, Rosenberg et al., 1995), academic self-concept (r = .38; Reynold, 1988), general self-regard (r = .78, Fleming & Courtney, 1984), depression (r = -.54, Fleming & Courtney, 1984; r = -.43, Rosenberg et al., 1995), anxiety (r = -.64, Fleming & Courtney,

1984; *r* = -.54, Rosenberg et al., 1995), and negative affective states (*r* = -.42, Rosenberg et al., 1995). Discriminant validity was demonstrated with locus of control (*r* = -.01; Reynold, 1988) and grade point average (*r* = .01, Fleming & Courtney, 1984; *r* = .10; Reynold, 1988). The internal consistency of the scale was found to be satisfactory with Cronbach's alpha coefficients reported to be higher than .70 (ranging between .74 and .77; McCarty & Hoge, 1982). Test-retest reliability of the RSES was found to be .87 for a two-week period (Silber & Tippett, 1965) and 61 for a period of seven months (Byrne, 1983). The RSES had been used on Australian adolescents previously, however a study detailing the scores obtained on each item was not found. A recent study with 1,686 adolescents aged between 13 and 19 reported a mean score of 31.16 (*SD* = 4.58) with a Cronbach's alpha of .88 (Andrews, Martin, Hasking, & Page, 2014). A meta-analysis investigating self-esteem among high-school and university students in Australia from 1978 to 2014 revealed stability over the 141 samples analysed. The mean score for these studies was 30 (Hamamura & Septarini, 2017).

The RSE was translated into French and validated by Vallieres and Vallerand (1990), using an initial sample of 56 university students (37 women, M_{age} = 18.18) in French-speaking-Canada. Their study established convergent validity with life satisfaction (*r* = .20) and depression (*r* = - .32). Test-retest demonstrated that the RSES was stable over a three-week period (*r* = .84, *N* = 60), and Cronbach's alpha showed acceptable internal consistency for both test (α = .83) and retest (α = .88). A French study using school-aged children between the ages of eight and ten reported a correlation of .40 with the Perceived Competence Scale for Children (PCSC; Harter, 1982), demonstrating convergent validity (Maintier & Alaphilippe, 2006). A CFA (*N* = 308, M_{age} = 18.14) confirmed a one-factor structure (Vallieres & Vallerand, 1990). Table 3 presents the mean scores and standard deviations for the RSES total from the original norming population for the French validation, and two subsequent studies using the RSES in school-aged children in France as well as the

French sample used in this study. Table 33 presents the norming samples on which the RSES was used for the first time with French speakers, two other French studies using the RSES, two studies using the RSES with Australian adolescents and the French and the Australian sample used in this study.

Table 33

Means, Standard deviations and Cronbach alphas for three published studies using the RSE in a French sample and the current study

Studies	N	Age	RSES total score	Cronbach's α
Vallieres & Vallerand, 1990	56 34 fem	*M* = 18.88	32.78 (5.69)	.70
	308 178 fem	*M* = 18.88	32.78 (5.69)	.88
	115 72 fem	*M* = 18.15	32.26 (5.52)	.88
Maintier & Alaphilippe, 2006	188	Non-specified Year level: 3	30.52 (4.79)	NA
Fourchard & Courtinat-Camps, 2013 (FR)	579 299 fem	11-17 *M* = 13.34	29.14 (6.05) *	.81
Delfabbro, Lahn, & Grabosky, 2006 (AU)	926 448 fem	11-19 *M* = 14.46	27.80 (6.92)	.87
Barrett, Sonderegger, & Sonderegger, 2002 (AU)	56 24 fem	*M* = 12.61	29.68 (3.80)	.79
Current French sample	146 56 fem	*M* = 12.68	27.73 (8.15)	.71
Current Australian sample	370 198 fem	*M* = 16.02	27.51 (5.86)	.76

Note. The study by Fourchard and Courtinat-Camps (2013) used a 6-point Likert-type scale and scores were scaled back to a 4-point Likert-type scale to allow meaningful comparison. NA: Non-applicable. Created by the author, Camille Rault, 2020.

Procedure

The study was conducted in accordance with the Australian Code for the Responsible Conduct of Research (2007) and with section 4.8 (People in other countries). After gatekeeper permission was obtained from school principals, the primary researcher liaised with school administration to organise a time for survey completion. Depending on the school, the time frame allocated for the survey completion differed. As a consequence, instrument batteries had to be trimmed to match administration times to the available testing times. To measure each of the necessary variables across the sample as a whole, it was necessary to implement a partial counterbalancing design where some instruments were not distributed in all schools. However, across the entire sample complete variable coverage was obtained.

Two of the French schools completed the survey online through the software program Qualtrics. Each student was provided with a Qualtrics link that gave them access to the survey. Participants from the three other French schools used pen and paper surveys during school vacant hours. For the Australian sample, similar to study 4, the classes involved in the questionnaire completion for study 5 were directed to the computer room and completed the survey in one session.

Results

Preliminary analyses

The data from the different sampling sites was collated into one dataset and was checked for data entry errors. Missing values analysis was conducted. The data fell below the acceptable 10 percent missing value for social sciences, which was not an issue (Benett, 2001). Univariate normality was assessed with a series of Shapiro Wilk's tests, and showed that the data differed significantly from a normal distribution. However, visual inspection of

the histograms did not indicate severe skewness or kurtosis. Mahalanobis distance was computed to identify multivariate (p <.001). Thirty-one multivariate outliers were identified. Analyses were conducted with and without these extreme cases. As no substantive differences were noted in the results between the complete dataset and after item deletion the decision was made to retain the cases.

Scatterplots did not indicate significant departures from linearity. There was no multicollinearity or singularity evident in the dataset as all correlation fell below .80 (Field, 2017). This section presents the correlation patterns for the young and old cohorts, and the entire sample, for both France and Australia.

Correlation matrices between factors for the young and old cohorts for the French sample

The correlations between Self-Appraisal (SA) and Peer Satisfaction (PS), SA and Health Dissatisfaction (HD) were found to be stronger for the older than the younger cohort. In contrast, the correlations between SA and School Satisfaction (SS), and SA and Exposure to Bullying (EB) were found to be stronger for the younger than the older cohort. SS was significantly negatively associated with EB for the younger cohort but not for the older cohort. PS was significantly negatively associated with EB for the older cohort but not for the younger cohort. PS was also significantly positively associated with Family Satisfaction (FS) for the older cohort but not for the younger cohort. EB shared a significant positive association with Negative Emotions (NE) and Worries (W) for the younger cohort but not for the older cohort. However, the relationship between EB and FS, and EB and HD was stronger for older cohort than for the younger cohort. The relationships between FS and NE, FS and W, and W and HD were stronger for the younger than the older cohort. Refer to Table 34 for the correlations.

Correlation matrix between factors for the whole French sample

The correlations for the entire French sample were observed to be somewhat different than for the sample used in study 3. The strength of the relationship between SA and PS was found to be lower for the entire sample. However, the relationship between SA and EB was significant for the entire sample, which was expected. Similar finding than for the sample of study 3, SS was found to be unrelated to PS, which contradicts the existing literature. However, the associations between SS and EB, NE, and W were found to be significant for the entire sample, which aligned with previous research. The significant associations found between PS and EB, NE, FS and W in the sample for study 3 did not maintain for the entire sample. Confirming expectations, EB was found to be significantly positively associated with NE and W for the entire sample. FS was found to be significantly negatively associated with NE and W. However, FS was not associated with the total score of CAMWB for the entire sample, and this finding was unexpected. Refer to Table 35 for the correlations.

Table 34

Pearson's product correlations between factors and total score of the CAMWB-FR (upper right diagonal) and for the younger cohort (lower left diagonal matrix)

	SA	SS	PS	EB	NE	FS	HD	WO	CAMWB
SA	-	.21***	.39***	-.08	-.36***	.39***	-.25***	-.31***	.67***
SS	.33***	-	-.06	-.07	-.07	.28***	-.29***	-.03	.45***
PS	.23***	-.05	-	-.10*	-.10	.21***	-.07	-.12*	.46***
EB	-.20**	-.14*	-.01	-	.07	-.29***	.12*	-.03	-.47***
NE	-.30***	-.10*	-.09	.40***	-	-.16**	.21***	.50***	-.56***
FS	.30***	.26***	.15	-.19***	-.24**	-	-.23***	-.13*	.63***
HD	-.13***	-.22***	-.03	.12	.26***	-.16*	-	.11*	-.53***
WO	-.29***	-.10	-.15*	.27***	.58***	-.21**	.23***	-	-.49**
CAMWB-FR	.60***	.46***	.33***	-.61***	-.69***	.54***	-.47***	-.66***	-

Note. The top part of the table is a duplicate of Table 26 from study 3, which represents the correlation between factors from the original EFA, the bottom part of the table represents the correlation between factors for the younger participants from the French sample, * = $p < .05$, ** = $p < .01$, *** = $p < .001$. Created by the author, Camille Rault, 2020.

Table 35

Pearson's product correlations between factors and total score of the CAMWB-FR for the entire French sample (N = 639)

	SA	SS	PS	EB	NE	FS	HD	WO	SA
SA	4.78 (0.79)	.28***	.29***	-.15***	-.35***	.36***	-.22***	-.32***	.65***
SS		3.98 (0.89)	-.03	-.13**	-.11**	.28***	-.29***	-.12**	.48***
PS			4.35 (0.87)	-.03	-.05	.15***	-.02	-.04	.33***
EB				3.04 (1.27)	.23***	-.26***	.14*	.15***	-.55***
NE					3.13 (0.90)	-.21**	.25***	.55***	-.63***
FS						4.60 (0.86)	-.22***	-.18***	.60***
HD							2.02 (0.88)	.20***	-.52***
WO								3.44 (1.02)	-.60***
CAMWB-FR									4.27 (0.51)

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

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Correlation matrices between factors for the young and old cohorts for the Australian sample

The correlations between FS, SS, HS and SA were stronger for the younger cohort than for the older. However, W and EB were more strongly associated with SA for the older cohort. FS and SS showed a stronger correlation for the younger than for the older cohort but the correlation between FS and W was stronger for the older cohort. The relationships between HS, W and PS were stronger for the younger cohort than the older one. The relationship between SS and HS was stronger for the younger cohort but the relationship between SS and W was only significant for the older cohort. The correlations between EB, W and NE were stronger for the younger cohort than the older one. The association between EB and H was only significant for the older cohort, while the association between EB and W was twice as strong as the younger cohort than the older one.

Correlation matrix between factors for the whole Australian sample

The correlations for the entire Australian sample were found to be similar than for sample used in study 4. The only notable difference was observed between SS and W. The relationship between these two variables was stronger for the older cohort than the younger cohort.

Table 36

Pearson's product correlations between factors and total score of the CAMWB-EN for the sample of study 4 (upper right diagonal) and for the younger cohort (lower left diagonal matrix)

	SA	FS	PS	SS	NE	EB	HS	WO	CAMWB-AU
SA	-	.53**	.29***	.50***	-.55***	-.16**	.50***	-.36***	.78***
FS	.58***	-	.32***	.40***	-.38***	-.09	.37***	-.24***	.68***
PS	.30***	.22***	-	.24***	-.06	-.03	.17**	.03	.42***
SS	.66***	.55***	.26***	-	-.39***	-.23***	.39***	-.28***	.67***
NE	-.40***	-.22***	.04	-.28***	-	.26***	-.44***	.47***	-.72***
EB	-.06	- .07	.06	-.16**	.38***	-	-.15**	.16**	-.46***
HS	.55***	.39***	.23***	.50***	-.32***	-.01	-	-.29***	.67***
WO	-.25***	-14*	.11*	-12*	.54***	.30***	-.25***	-	-.57***
CAMWB-AU	.83***	.68***	.39***	.73***	-.69***	-.42***	.71***	-50***	-

Note. The top part of the table is a duplicate of Table 28 from study 4, which represents the correlation between factors from the original EFA, the bottom part of the table represents the correlation between factors for the younger participants from the Australian sample, * = $p < .05$, ** = $p < .01$, *** = $p < .001$. Created by the author, Camille Rault, 2020.

Table 37

Pearson's product correlations between factors and total score of the CAMWB-EN for the entire Australian sample (N = 714)

	SA	FS	PS	SS	NE	EB	HS	WO	CAMWB-AU
SA	4.39 (0.89)	.56**	. 31***	.58***	-.52***	-.13**	.53***	-.31***	.80***
FS		4.62 (093)	.26***	.46***	-.33***	-.09*	.39***	-.20***	.68***
PS			4.26 (0.78)	.27***	-.02	-.02	.19***	.08*	.38***
SS				4.53 (0.74)	-.34***	-.19***	.43***	-.19***	.69***
NE					3.30 (0.76)	.32***	-.40***	.50***	-.70***
EB						3.00 (1.03)	-.09*	.23***	-.45***
HS							4.08 (0.83)	-.27***	.66***
WO								3.64 (0.85)	-.54***
CAMWB-AU									4.12 (0.52)

Note. $p < .05$, ** = $p < .01$, *** = $p < .001$.

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Validity

Construct validity: Confirmatory Factor Analysis

Table 36 presents the results of the CFA for the entire French and Australian samples for the model of SWB with the previously obtained eight factors. Report of the CFA used three criteria to assess the model fit, Goodness-of-fit, fit indices, and analyses of the residuals. Maximum likelihood estimation suggested that the data significantly deviated from the specified model in France, χ^2 (16, N = 639) = 160.48, p < .001, and in Australia, χ^2 (18, N = 639) = 113.52, p < .001. The ratio (chi-square/degrees of freedom) values obtained for both France (10) and Australia (6.3) were above 5, suggesting poor fit of the models. The difference chi-square indicated that the model differed significantly, $\Delta \chi^2$ (1) = 46.96, p <.001.

Inspection of the fit indices showed that the NFI, the TLI, the CFI and the GFI were lower than the acceptable cut off for the French sample, suggesting a poor fit. However, the values met the acceptable standards for the Australian sample (refer to Table 38).

Analyses of the residuals showed that for both France and Australia, the RMSEA values indicated a poor fit of the models. The SRMR value for the French sample exceeded the recommendations, indicating inadequate model fit. However, the Australian model was found to be adequate. Based on these estimations, the Australian model was found to fit the data better than the French model.

Table 38

Fit indexes and residuals of the CFA for the French and the Australian samples on the model of adolescent well-being

Parameters	NFI	TLI	CFI	GFI	RMSEA	SRMR
French sample (*N* = 639)	.80	.67	.81	.87	.12	.09
Australian sample (*N* = 714)	. 92	.89	.93	.96	.09	.06

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Comparison of the French and the Australian model of adolescent SWB

The French model was computed with the Peer satisfaction path fixed[41]. The strongest path weights were observed between Negative Emotions, Worries and the latent variable of SWB. Despite Negative Emotions (t (1190) = 3.76, p <.001) and Worries (t (1247) = 3.28, p <.001) being the most reliable indicators of SWB for the French sample, Australians scored significantly higher on both subscales (Refer to Table 35 and Table 37 for means and standard deviations). The third largest path weight was recorded for Self-Appraisal. School Satisfaction and Exposure to Bullying recorded the lowest path weights. In order to improve the model, error terms correlations were added between Peer Satisfaction, Family Satisfaction, Negative Emotions, Worries and Self-Appraisal. Interestingly, these correlations could reflect the importance of emotions and significant others in adolescents' self-appraisal. Refer to Figure 5.

[41] Path coefficients can be fixed to minise the number of parameters to be estimated in the model (Schreiber et al., 2006). A value of 1 was used to fix this parameter.

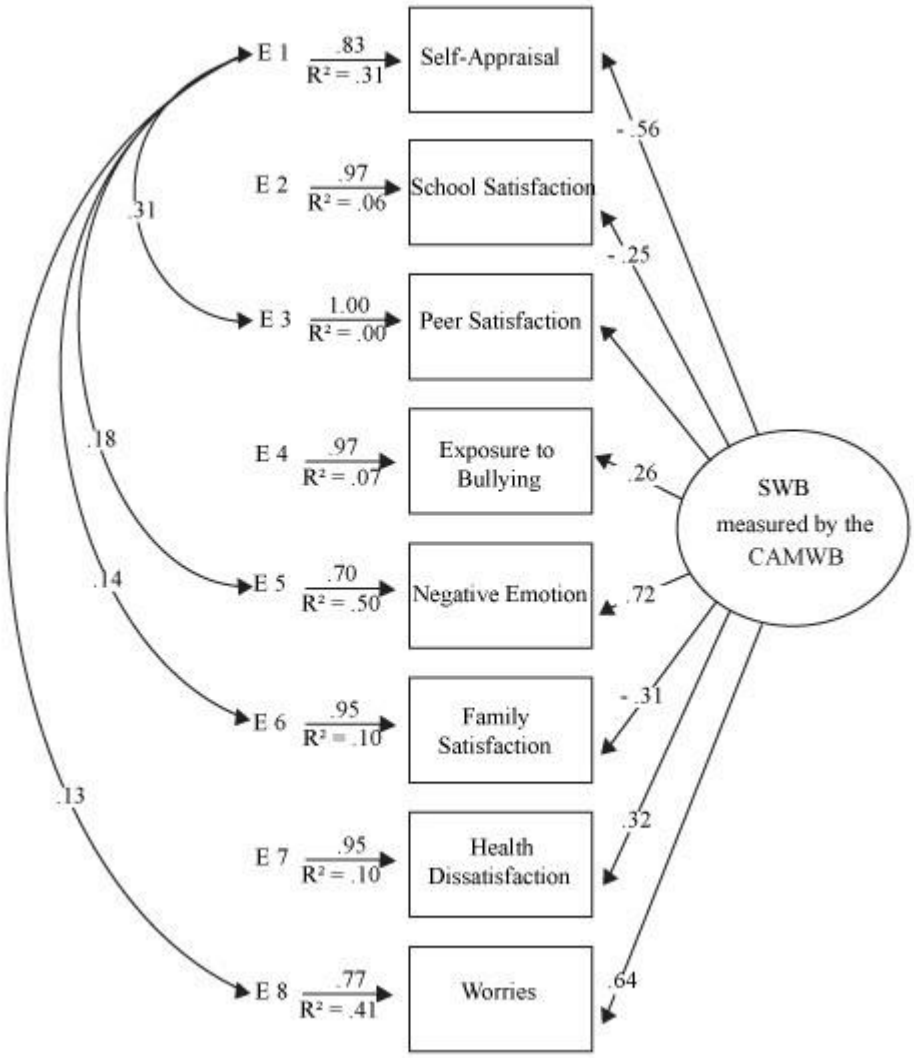

Figure 5. CFA of the CAMWB for the full French sample.

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The Australian model was found to improve when all parameters were free, therefore all path weights were estimated. The strongest path weights were observed between Self-Appraisal, School Satisfaction and the latent variable of SWB. Despite Self-Appraisal being the most reliable indicator of SWB for the Australian sample, French students scored significantly higher

on Self-Appraisal (t (1351) = 8.43, p <.001). The Australian scored significantly higher on School Satisfaction (t (1244) = 12.40, p <.001; Refer to Table 35 and Table 37 for means and standard deviations). The third largest path weight was recorded for Family Satisfaction. Peer Satisfaction and Exposure to Bullying recorded the lowest path weights. Correlations between error terms were added to improve the model between Peer Satisfaction, Negative Emotions and Worries. Interestingly, these correlations could reflect adolescents experienced worries relating to their peers.

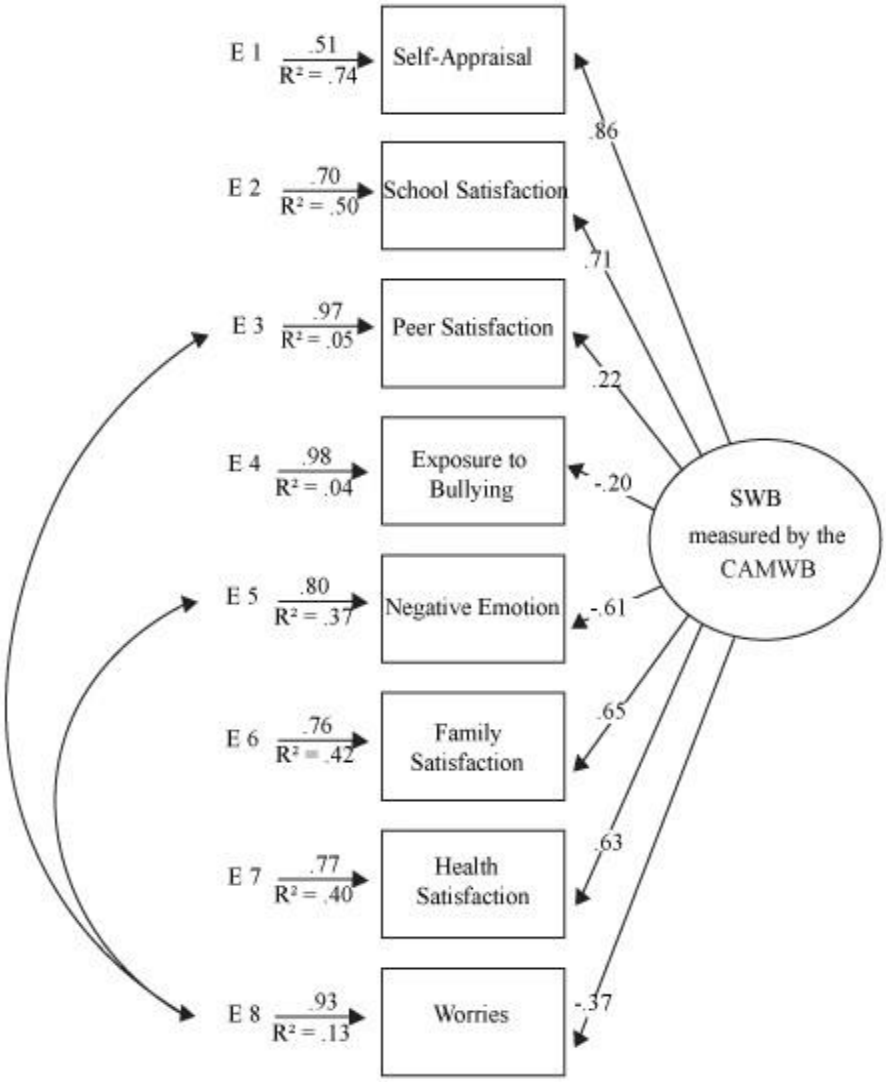

Figure 6. CFA of the CAMWB for the full Australian sample.

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Convergent and Predictive Validities

Pearson's product correlations were computed to establish convergent, divergent and criterion validity with the factors and total score of the CAMWB (refer to Table 39). As

expected, the BMSLSS-PTPB and the RSES correlated significantly positively with SA, SS, FS and the total score of CAMWB and significantly negatively correlated with NE and W. The strength of the associations was found to be moderate to strong, which indicated support for convergent and criterion validity in both the French and the Australian sample. However, no significant associations were found between PS, EB, and PH and the BMSLSS-PTPB and the RSES in the French sample. For the Australian sample, EB and HS were significantly associated with the BMSLSS-PTPB and the RSES, as well as PS with the RSES. Significant negative correlations were expected between the KADS-6 and SA, SS, PS, FS as well as the total score of CAMWB, and were confirmed. Similarly, the expected significant positive correlations between the KADS-6 and EB, NE, HD, and W were supported. The reported strength of the associations with the KADS-6 strongly supported convergent validity for both samples. For the Australian sample, the correlations between the PWI-SC and the factors and total score of the CAMWB were significant and in the expected direction, except for EB, which did not share a significant association with the PWI-SC. In contrast, the association between the factors and the total score of the CAMWB and the PWI-SC, did not yield satisfactory outcomes in the French sample. SS and PS were significantly positively correlated with the PWI-SC, and W was significantly negatively correlated with PWI-SC. All other factors and the total score shared close to no association with the PWI-SC. It was interesting to note that the PWI-SC did not share a significant correlation with the BMSLSS-PTPB but shared a significant positive weak relationship with the KADS and the RSES in the French sample. The positive relationship between the PWI-SC and the KADS-6, as well as the very low correlations with the CAMWB, may indicate an issue with the PWI-SC in this sample. It would also appear that the CAMWB is a better indicator of depression symptoms than the BMSLSS-PTPB and equivalent to the

BMSLSS-PTPB as a predictor of self-esteem. These results suggested that convergent and criterion validity were supported.

Table 39

Pearson's product correlations between factors, total score of the CAMWB and the BMSLSS-PTPB, the PWI-SC, the RSE and the KADS-6 in the French sample and the Australian sample

	BMSLSS-PTPB		PWI-SC		RSES		KADS-56	
Sampling sources	FR	AU	FR	AU	FR	AU	FR	AU
SA	.45***	.56***	-.02	.66***	.46**	.67***	-.42***	-.53***
SS	.31***	.50***	.09*	.57***	.20*	.42***	-.16**	-.39***
PS	.10	.11	-.25***	.30***	.15	.16***	-.20***	-.12
EB	-.06	-.18*	-.04	-.07	-.15	-.11*	.18***	.18***
NE	-.18*	-.50***	-.02	-.43***	-.27**	-.58***	.43***	.64***
FS	.28***	.51***	.10*	.56***	.20*	.38***	-.29***	-.38***
HD[a,] HS[b]	-.17	.36***	-.02	.56***	-.16	.43***	.31***	-.37***
W	-.17*	-.41***	-.16***	-.29***	-.32**	-.41***	.37***	.38***
CAMWB	.38***	.63***	-.01	.72***	.39***	.72***	-.54***	-.65***
BMSLSS-PTPB	-	-	.15	.63***	.40**	N/A	-.20	-.55***
PWI-SC			-		.27*	N/A	.15**	-.47***
RSES					-	-	-.32**	-.60***
KADS-6							-	-
n	144	260	527	260	115	370	460	635

Note. Superscript a denotes the factor measuring health dissatisfaction in the French solution, while superscript b denotes the factor measuring health satisfaction in the Australian solution. NA = the Australian participants that filled the RSES questionnaire did not complete the PWI-SC nor the BMSLSS_P. Australian sample, N = 714 and French sample (N = 639). Created by the author, Camille Rault, 2020.

Discussion

The aim of study 5 was to establish the psychometrics of the CAMWB with the entire French and Australian samples used in this research. In the first part of the study, patterns of correlation between factors were presented to observe whether these correlations differed with age. In order to confirm the obtained factor solutions from studies 3 and 4, two CFAs were performed. In the second part of the study, convergent, divergent, and criterion validity were established using the BMSLSS-PTPB, the PWI-SC, the KADS-5, and the RSES. Overall, the psychometrics of the CAMWB were supported.

The prediction that the pattern of association between factors of the CAMWB would differ with age in both samples was supported. In the French sample, the relationship between Self-Appraisal and Peer Satisfaction was more important for the older cohort. This finding reflected the growing importance of peers in adolescence and the potential influence of friendship on self-image (Brown, 2011; Brown & Larson, 2009; Park, 2004; Steinberg, 2002; Veronneau, Trempe, & Paiva, 2014). This finding was not replicated in the Australian sample. However, it was suggested that this was due to a lower age difference between the two Australian samples as compared with the French samples.

The relationship between Self-Appraisal and Health Dissatisfaction was two-fold higher for the older cohort in the French sample. It was suggested that this result might reflect adolescents' increased awareness of their health status, which could affect their self-image. Although Australian data followed the same trend, the difference between the young and old cohorts was only marginal. In contrast, the association between Self-Appraisal and School Satisfaction was stronger for the younger cohorts in both settings. Academic demands increase

with age, and possibly affects students' level of satisfaction with school and their confidence regarding their competence (Jessor, 1993; Jin & Moon, 2006; Suldo & Huebner, 2004).

Exposure to Bullying was found to have a greater impact on Self-Appraisal for the younger cohort in the French sample. Inspection of the scores on Exposure to Bullying for the French cohorts showed that Exposure to Bullying was reported more frequently by the young French cohort. Consequently, the discrepancy noted in the relationship between the Exposure to Bullying and Self-Appraisal could be a reflection of an existing phenomenon for one age group (young) and the lack thereof for the other age group (old). This idea appeared to be supported as Exposure to Bullying was related to Negative Emotions and Worries for the younger cohort only, suggesting that the phenomenon of bullying was negatively affecting younger students more.

The opposite relationship was observed in the Australian sample, as Exposure to Bullying had a stronger association with Self-Appraisal for the older cohort. The scores on Exposure to Bullying were very similar between the two cohorts, and while the magnitude of the relationship between Exposure to Bullying and Self-Appraisal was stronger for the older cohort, the associations between Exposure to Bullying and Negative Emotions and Worries were stronger for the younger cohort. This finding was interesting as it could suggest that Exposure to Bullying affected more the experience of negative feelings and worry for younger students. For older adolescents, Exposure to Bullying could have affected the way they see themselves, potentially relating to longer exposure to bullying behaviours that could have eventually affected an individual's sense of identity. In addition, to corroborate this explanation, the association between Exposure to Bullying and Health Satisfaction was only significant for the older cohort, thereby indicating a possible internalisation of symptoms was more pronounced for the older adolescents.

Differences in correlation coefficients were found between France and Australia in their model of adolescent SWB. In the French sample, Negative Emotions and Worries were found to be associated with Family Satisfaction more strongly for the younger participants. As adolescence progresses, individuals move away from their parents (Erikson, 1993), and consequently, the familial influences might be less related to Negative Emotions and Worries. This trend was reversed in the Australian sample. This pattern could be explained by the same transition but potentially not as well negotiated by the Australian adolescents, who could be facing tensions at home. These results indicated that the association between different life domains were susceptible to vary according to age.

The hypothesis that the structure of the CAMWB identified in previous studies would be confirmed by the CFAs in both samples was partially supported. The results of the CFAs suggested that the Australian model showed acceptable fit. While the French model was close to the specified structure, fit indices exceeded .80 but did not uniformly reach higher standards that would indicate acceptable fit. In regard to the French model, Negative Emotions and Worries showed the strongest path weight with the SWB, followed by Self-Appraisal. These results suggested the experience of negative emotions and worries were central to the evaluation of SWB for this sample. It was noteworthy that to improve the model error terms were needed between Peer Satisfaction, Family Satisfaction, Negative Emotions, Worries, and Self-Appraisal. It was suggested that French adolescents might evaluate themselves with consideration of their peer's and family's opinions. In addition, their experiences of negative emotions and worries might affect their self-image; the importance of doubt and negative affect in the evaluation of Self-Appraisal for this sample further supported the suggestions made in study 3 and 4 regarding the emotionality of the French culture (Gaffney, 2004). This was thought to reflect the femininity

of the French culture (Hofstede, 1980). School Satisfaction and Exposure to Bullying appeared to be the least reliable indicator of SWB. Peer satisfaction was also a poor indicator of well-being. These results were at odds with previous literature that found that School Satisfaction and Peer satisfaction were some of the most important predictors of SWB (Brown, 2011; Cummins & Lau, 2005; Lawler, Newland, Giger, & Roh, 2015; Wentzel, 2014). Similarly, studies have found that bullying was found to have an influence on SWB (Gobina, Zaborskis, Pudule, Kalnins, & Villerusa, 2008; Kerr, Valois, Huebner, & Drane, 2011, Rigby, 2017).

In contrast, in the Australian model, the strongest path weights were displayed for Self-Appraisal and School Satisfaction, followed by Family Satisfaction. These results were more consistent with existing literature (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Lawler et al., 2015; Newland, Lawler, Giger, Roh, & Carr, 2015). Error terms were added between Peer Satisfaction, Negative Emotions, and Worries. It was suggested that Australian adolescents might experience worries relating to their peers. Previous research found that peer-related problems can present as the primary type of stressful event for adolescents (Washburn-Ormachea, Hillman, & Sawilosky, 2004). However, Peer satisfaction and Exposure to Bullying appeared to be the least reliable indicators of SWB. Again, this result was incongruent with prior research (Gobina, Zaborskis, Pudule, Kalnins, & Villerusa, 2008; Kerr, Valois, Huebner, & Drane, 2011; Lawler et al., 2015; Wentzel, 2014). Overall, the Australian model of SWB, as measured by the CAMWB, showed a better fit than the French model, as indicated by the higher values of fit indices and the lower residual values.

It was interesting that the strongest path weights for the French sample were indicative of negative aspects of SWB compared to the Australian sample. Although Negative Emotions and Worries were more important in the French model, Australian scored significantly higher on

Negative emotions and Worries. In a similar manner, although Self-Appraisal had the strongest path weight in the Australian model, the French students scored higher on this subscale. In contrast, Australian scored higher on School Satisfaction compared with the French. For both samples, Peer Satisfaction was a poor indicator of SWB. This result may indicate variability in the scores obtained by the samples or an issue with the instrument.

In the second part of the study, the psychometrics of the CAMWB were tested using the BMSLSS-PTPB, the PWI-SC for convergent validity, the KADS-5 for divergent validity, and the RSES for criterion validity. This appeared to be the first use of the BMSLSS-PTPB and the KADS-6 in France and Australia, and of the PWI-SC in France. It was interesting to observe that the Australian sample scored lower on the BMSLSS-PTPB than previously used samples, while French scores were comparable. In regard to the KADS-6, the French adolescents reported fewer symptoms of depression and the Australian reported more symptoms of depression than the norming sample. Scores on the PWI-SC and the RSES were lower than previously reported for both samples.

As anticipated the overall score of the CAMWB shared a moderate significant positive correlation with the BMSLSS-PTPB for both samples. The factors of the CAMWB also shared significant associations in the expected direction with the BMSLSS-PTPB, except Peer Satisfaction for both samples, and Exposure to Bullying in the French sample.

In the Australian sample, the use of the PWI-SC was found to be successful. the CAMWB total score and all subscales, except Exposure to Bullying, shared significant associations with the PWI-SC in the expected direction. In contrast in the French sample, the PWI-SC shared no association with the overall score of CAMWB and most factors. Nonetheless,

some factors correlated significantly with the PWI-SC. School Satisfaction positively correlated with PWI-SC and Worries negatively correlated with PWI-SC. Surprisingly, Peer Satisfaction showed a negative association with PWI-SC. Upon inspection of the scores obtained on the PWI-SC by the French sample, notable differences were observed. Aside from the first item, the current French sample scored systematically almost half of previously reported scores. The first item of the PWI-SC asked participants to rate their satisfaction on “things that they have”, which related to concrete belongings, while the other items alluded to more conceptual aspects. Potentially, French students found it easier to express satisfaction towards concrete aspects of their lives than to abstract ones. It was noteworthy that, for the French sample, the PWI-SC did not significantly correlate with the BMSLSS-PTPB, although both instruments measured the same concept. This was the first use of the PWI-SC with a French sample. Future research beyond the scope of this work could investigate the noted discrepancy. The results partially supported convergent validity and future investigations should aim to investigate the French results using the PWI-SC.

The KADS-6 demonstrated the strongest correlations with the CAMWB and factors in both samples. The CAMWB total score, Self-Appraisal and Negative Emotions shared the strongest associations with the KADS-6. The measure of depression also correlated with the BMSLSS-PTPB, the PWI-SC and the RSES in a meaningful way. However, the association with the BMSLSS-PTPB and the KADS-6 was not significant for the French sample. The results supported divergent validity.

The criterion validity was supported because the overall score of CAMWB and factors significantly correlated with the RSES in the Australian sample. Similar correlations were observed in the French sample except for Peer Satisfaction, Exposure to Bullying, and Health

Dissatisfaction. This finding was unexpected as Peer Satisfaction was found to be associated with self-esteem (Birkelan, Breivik, & Wold, 2014; Wagner, Ludtke, Robitzsch, Gollner, & Trautwein, 2018) and Exposure to Bullying was found to decrease self-esteem (Patchin & Hinduja, 2010; Skues, Cunningham, & Pokharel, 2005). Peer Satisfaction and Exposure to Bullying also did not correlate with the BMSLSS-PTPB and as such there could be an issue with the measurement of these factors. As far as Health Dissatisfaction was concerned, this result could be explained by the lack of self-awareness of the young cohort of their health status and therefore the lack of association with their self-esteem.

Study 5 confirmed the factor structure found in studies 3 and 4 with the entire French and Australian samples and examined the differences between the young and old cohorts. The CFAs demonstrated adequate factor structure and showed that the Australian model fitted the data more meaningfully. The psychometrics of the instrument, convergent, and criterion validity, were established in the French and Australian samples, warranting the use of the CAMWB for this thesis

Chapter 7

Study 6: Coping profile of French and Australian adolescents

The previous chapter described testing of the model of SWB, using the CAMWB, in a French and an Australian sample and highlighted some differences suggested thought to be influenced by culture. In chapter two, a review of the literature indicated that adolescent adjustment was in part the results of coping, and as such oping behaviours displayed by adolescents is the focal point of this chapter. The aim of this study was to explore the profile of coping of the sampled adolescents and to compare the profile of coping of the Australian and French participants. With the growing interest in stress in the 1960s and 1970s, coping became an emerging focus of research (Frydenberg, 2008; Lazarus & Folkman, 1984). Early psychoanalytic theories suggested that psychopathology was a form of coping, and each type of psychopathology represented a defensive style. For example, hysterical neuroses were linked to depression and paranoia was related to projecting. These defensive styles were viewed as being shaped throughout Freud's developmental stages (1915/ 1964).

As indicated in chapter two, coping is seen as the way individuals manage stressful life events (Lazarus, 1999). Stress has been defined as the discrepancy between an individual's assessment of the demands of a situation and the resources needed to meet these demands (Lazarus, 1991). Coping and stress could be said to share a reciprocal relationship, that is when coping is effective, stress levels decrease, and when coping is ineffective, stress levels increase (Lazarus, 1999).

Historically, there have been two ways of approaching coping: the evolutionary approach and the ego-psychological approach. The evolutionary approach, which was derived from animal experimentations around of stress and control, is traditionally identified by the "fight-or-flight

response" (Cannon, 1932). However, more recent research by Taylor et al. (2000) proposed that the fight-or-flight response was more appropriate to describe males' stress response than females'. Instead, they proposed that females displayed "tend-and-befriend" behaviours more often as a response to stressful events and were more likely to respond to stress by caring for offspring, developing networks to reduce their sense of vulnerability, and increase the number of available resources. In both cases, the evolutionary approach relies on learned behaviours that may have been shaped by natural selection (Miller 1980; Taylor et al., 2000). This model, though interesting, has been criticised as simplistic and failing to reflect the complexity of the cognitive-emotional richness of human functioning (Lazarus & Folkman, 1984).

In contrast, the ego-psychological approach considered the richness of human functioning and emphasised how individuals can learn about the different strategies available to respond to stress (Lazarus & Folkman, 1984). In this approach, coping was described as a voluntary cognitive process used to diminish stress (Lazarus & Folkman, 1984; Vaillant, 1977). However, in this context, the behaviour displayed by the individual was of less interest than the cognitive processes involved in the coping response (Lazarus & Folkman, 1984). In an attempt to facilitate coping measurement, supporters of this approach viewed coping as a style or a trait. A coping style would be a broad and pervasive way to respond to situations in general, while a coping trait would be narrower and would constitute an attribute employed by an individual that could be displayed when responding to a specific situation (Lazarus & Folkman, 1984). However, attempts to measure these approaches reduced coping to two opposing broad concepts and oversimplified the complexities involved in the phenomenon (Lazarus, 1999). Additionally, although it was acknowledged that some aspects of coping might be stable, and individuals

might have preferred coping responses to attenuate stress, using styles or traits to predict coping responses showed little utility (Lazarus & Folkman, 1984).

An alternative to these two approaches was offered by Lazarus and Folkman (1984). They conceptualised coping as a dynamic process that simultaneously influenced both the person and the environment. As such coping necessitates continual cognitive and behavioural efforts to face and manage internal and external demands that are considered to exceed personal resources. When an individual believes that the demands on him or her exceeded personal resources, he or she requires to manage those demands, stress rises. In their model, the experience of stress was thought to be highly subject to the interpretation of the stressor, rather than the stressor itself. This was known as cognitive appraisal. According to this model, the initial appraisal underwent a two-step primary evaluation (primary appraisal). The stressor's significance was first assessed as either irrelevant, benign-positive, or stressful. In the irrelevant and benign-positive cases, the stressor encountered did not carry negative implication for the individual, or enhance current and future state of well-being. However, when the stressor was deemed stressful, stress appraisals included harm, threat, and challenge. The stressor was assessed as harmful if the individual had previously suffered harm from an encounter with the stressor. The stressor was appraised as threatening when it was perceived the stressor could endanger the individual in the future. The stressor was appraised as challenging when the individual perceived the encounter as an experience from which to learn with potential gains. Once the stressor was evaluated, the individual started to assess internal and external resources to deal with the stressor. This was seen as a reappraisal, or secondary appraisal of the stressor (Lazarus, 1999; Lazarus & Folkman, 1984). This model was known as the *transactional model of stress and coping*.

In this model, coping needed to be evaluated separately from its outcome taking into account the individual involved, the stressful event, the nature of the encounter with the stressful event, and the outcome variable (e.g. well-being, social relationships, or health; Lazarus, 1999). This meant that the same coping response, for example denial, could be harmful or beneficial, depending on the context of the stressful event. An illustration of this paradox can be seen in a patient suffering a heart attack. Denial could be detrimental and result in death. However, for a patient suffering cancer, denial could be helpful to attenuate the constant fear of dying, thereby allowing the body to use available resources on recovery.

In summary, the conceptualisation of coping as a process had three main features. Firstly, the individual thought or behaviour when encountering the stressful event needed to be assessed. Secondly, this way of thinking or acting needed to be evaluated within the specific context of the stressful event. Thirdly, coping as a process involved a change in coping thoughts and actions in the face of the stressful event unfolding, which meant that to deal with a situation the individual must be able to rely on different coping behaviours adapted to the event (Lazarus, 1999).

Two ways of coping were identified: *problem-focused coping* and *emotion-focused coping*. When the individual perceived himself or herself to be in control of the situation and able to manage the source of the stressor, problem-focused coping was used. This was seen as a logical and systematic approach involving an analysis and breakdown of steps to deal with stress. The steps included defining the problem, generating solutions to the problem, acquiring skills to manage the stressor, and reappraisal of the problem. Emotion-focused coping was used when there was less perceived control of the stressor and the problem was difficult to manage. This was characterised by behaviours such as avoidance, ignoring, seeking emotional support, and substance use in an attempt to reduce the negative emotional states. However, a major limitation

of the theoretical conceptualisation of coping by Lazarus and Folkman (1984) resided in the strong emphasis on the environment. The experimental testing of such a model was found to be difficult because coping responses needed to be evaluated within their context, which was not always possible (Lazarus, 1999).

Other researchers suggested that coping styles could best be classified as *functional* or *dysfunctional* (Frydenberg & Lewis, 1991; Seiffge-Krenke & Shulman, 1990). There are two types of functional coping styles. The first type of functional coping attempted to deal with the issue in reference to others while the second type of functional coping did not (Frydenberg, 2008). An illustration of these two types could be seen in an individual seeking support from a psychologist (first type) and practising meditation (second type) to cope with anxiety. These strategies tended to be qualified as productive (adaptive) coping strategies. In contrast, dysfunctional coping related to the use of non-productive (maladaptive) coping strategies such as self-blame, avoidance, or substances abuse (Frydenberg, 2008). However, it was important to note that functional and dysfunctional did not necessarily equate to good and bad, as coping strategies always needed to be evaluated in relation to the context in which they were applied (Frydenberg, 2008).

The *approach avoidance model of coping* was also offered as an alternative by Roth and Cohen (1986). According to this model, *approach orientated coping* actively sought out information about the source of stress or observed the stressor closely. Approach coping was found to be effective for long-term issues, and when a solution was available. For diseases such as asthma and diabetes, approach coping was beneficial because knowing more about the disease would allow the individual to make informed life choices regarding lifestyle (Mullen & Suls, 1982; Roth & Cohen, 1986). An *avoidance orientation of coping* actively distracted or ignored

the source of stress. When the situation was uncontrollable and that short-term outcomes were measured, avoidance coping presented several advantages (Mullen & Suls, 1982; Roth & Cohen, 1986). After the death of a close one, avoidance could allow the individual to cope with the initial shock, whilst their emotional resources were depleted by their response to the event. A study in hospital settings showed that children also displayed these two approaches to coping during preparation for painful medical procedures (Hubert, Jay, Saltoun, & Hayes, 1988). Children with high approach coping displayed more interaction behaviours such as questioning, touching, and observing. However, children with high avoidance coping displayed more behaviours such as attempting to escape or manipulating and changing the situation. A review by Lazarus (1983) indicated that avoidance approach could be helpful only for a limited time and might result in increased cost later. This was supported by empirical evidence that avoidance coping was associated with depression, anxiety, and poor psychological adjustment in adolescents (Ebata & Moos, 1991, Frydenberg & Lewis, 2009; Herman-Stahl, Stemmler, & Petersen, 1994). An important finding was presented by Miller and Magan (1983) which measured the fit between coping preference and imposed coping approach. In an experiment, they allocated half of the subjects to receive a low amount of presurgical information while the other half was given a high amount of information. Subjects were presented with either information congruent with or incongruent with their preferred coping style. The subjects who did not experience dissonance between the condition and their preferred coping approach reported less distress than the subjects who experienced dissonance. These findings suggested the importance of understanding the coping profile of individuals.

The development of coping mechanisms was crucial as it determined how individuals faced stressful life events. In addition, children and adolescents who did not learn to respond

effectively to stress developed a range of psychosocial issues such as depression, anxiety, conduct disorder, eating disorder, and display of violence (Kovacs, 1997; Matheny, Aycock, McCarthy, 1993). However, as was the case with Subjective Well-Being (SWB), research focused on adults' model of coping and the understanding of adolescent coping has lagged behind (Frydenberg & Lewis, 1994; Rehulkova, Blatny, & Osecka, 1995; Wilkinson, Walford, & Espnes, 2000). Coping styles have been found to be persistent through time. Consequently, developing positive coping behaviours early in life would allow responding in the most adaptive manner to stressful events life.

Research on adolescent coping identified internal and external characteristics that supported engagement in adaptive forms of coping such as optimism, perceived personal control, family environment, and availability of social support (Luthar & Zigler, 1991). Adaptive forms of coping were associated with higher levels of SWB and self-worth (Ebata & Moos, 1991). Frydenberg and Lewis (2009) investigated the use of active coping and avoidant coping in a sample of Australian adolescents. Their results showed that avoidant coping was negatively correlated with SWB and positively with distress. Adolescents' use of problem-focused coping strategies was associated with lower levels of depression while their use of emotion-focused coping strategies was not (Ogul & Gencoz, 2003).

Since it was important to understand the various ways adolescents cope and the impact of their coping style on their SWB, study 6 investigated adolescent coping strategies. As stated in chapter two, the literature revealed there was an existing instrument specifically for adolescent coping which covered its relevant domains. Study 6 used the Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987) that classified coping into 12 behavioural strategies. In this study, all coping strategies that were problem-focused, functional,

approach orientated, and productive were referred to as adaptive coping strategies. In contrast, all coping strategies that were emotion-focused, dysfunctional, avoidance orientated, and non-productive would be referred to as maladaptive coping strategies. There had not been a previous investigation of the cultural profile of adolescent coping. Therefore, the current study examined whether French and Australian adolescents differed on the 12 behavioural strategies for coping. To ensure that the A-COPE could appropriately be used in the two samples, a multi-sample analysis was run. It was hypothesised that the model fit would support the use of the A-COPE in both samples, as indicated by fit indices. Additionally, since that coping is an interaction between the individual and the environment, the models of adolescent coping were expected to differ between the Australian and French sample, as indicated by different fit indices and path weight coefficients.

Method

Participants

The same samples of adolescents from previous studies were used in this study. There was a total of 714 Australian adolescents (376 females, 321 males, and 17 not specified) and of 639 French adolescents (370 females, 258 males, and 11 not specified), there was no significant difference in gender distribution, $\chi^2(2) = 2.64$, $p = .267$. The Australian adolescents were aged between 12 and 18 ($M = 15.28$, $SD = 1.08$) and the French adolescents were aged between 10 and 19 ($M = 14.13$, $SD = 2.02$). The two samples differed significantly on age $t(959) = 12.79$, $p < .001$. As previously discussed (refer to chapter three), length of the battery of instruments and concerns as to the content of some items in the A-COPE, some participants in French sample completed questionnaire reduced battery without the ACOPE component.

Material

Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987).

The A-COPE includes 54 items measuring coping behaviours from 12 subscales: Ventilating feelings, Seeking diversions, Developing self-reliance and optimism, Developing social support, Solving family problems, Avoiding problems, Seeking spirituality, Investing in close friends, Seeking professional support, Engaging in demanding activity, Being humorous, and Relaxing. Participants are asked to record their answers on a 5-point Likert type response scale ranging from 1 *Never* to 5 *Most of the time.* High scores on each index was indicative of frequent use of each coping strategy. The scoring guide suggested that nine items needed to be reverse-coded.

Patterson and McCubbin (1987) tested the concurrent validity of the subscales with measures of adolescents' use of cigarette, alcohol, and marijuana. For the males of their samples, significant correlations were reported between Ventilating feelings (r = .13 - .17) and Investing in close friends and (r = .16 - .25) these patterns of behaviours. The consumption of alcohol was associated with Developing social support and Seeking professional support (r = .09; Patterson & McCubbin, 1987). Negative correlations were reported between Solving family problems and smoking cigarettes and drinking alcohol (r = .13 - .14), between Engaging in demanding activity and smoking cigarettes (r = .12), and between Seeking spirituality and drinking alcohol (r = .11; Patterson & McCubbin, 1987).

For the females in the sample, Ventilating feelings (r = .11 - .17), Investing in close friends and (r = .13 - .18) and Developing social support (r = .10 - .14) were associated with the consumption of cigarette, alcohol, and marijuana. Negative correlations were reported between

these patterns of behaviours and Solving family problems (r = .10 - .21), seeking spirituality (r = .1 - .21), and Engaging in demanding activity (r = .13 - .18; Patterson & McCubbin, 1987)

Table 40

Cronbach's alpha obtained from the Patterson and McCubbin (1987) norming sample, along with the current samples and associated corrections.

	VF	SD	DSR	DSS	SFP	AP	SS	ICF	SPS	EDA	BH	R
P&M	.75	.75	.69	.75	.75	.71	.72	.76	.50	.67	.72	.60
AU	.17	.46	.61	.62	.74	.29	.58	.28	.56	.68	.75	-.11
	.62*					.56*						.38*
FR	.20	.34	.48	.57	.71	.56	.39	.36	.54	.47	.43	-.15
	.64*					.64*						.20*

Note. Cα: Cronbach alpha, * denotes corrected Cronbach's alpha, VF: ventilating feelings, SD: seeking diversions, DSR: developing self-reliance and optimism, DSS: developing social support, SFP: solving family problems, AP: avoiding problems, SS: seeking spirituality, ICF: investing in close friends, SPS: seeking professional support, EDA: engaging in demanding activity, BH: being humorous, R: relaxing. Patterson and McCubbin (P&M). Created by the author, Camille Rault, 2020.

The scoring guide provided by developers of the scale was followed for all but three subscales. These were Avoiding problems, Ventilating feelings, and Relaxing. Inconsistency in the direction of items was noted, and negative correlations within these three factors were observed. For example, the subscale Avoiding problems comprised the items "Tell yourself the problem is not important", "Try to stay away from home as much as possible", "Use drugs (not prescribed by doctor)", "Smoke", and "Drink beer, wine, liquor". According to the manual, the first item of this subscale was positive while the subsequent items were negative. Patterson and

McCubbin (1987) posited that while *telling yourself the problem was not important* as a form of avoidance, it was not necessarily reflective of a negative behaviour. However, it was argued in the present study that these five items pertained to avoiding coping strategies having the same direction. Corrections were applied to render the factors meaningful and improve the Cronbach's alpha.

The construct validity of the A-COPE has been the subject of debate in the literature with studies yielding different results. Testing the A-COPE on a sample from Singapore, Dusek and Danko (1994) suggested that a three-factor structure (problem-focused coping, emotion-focused coping, and cognitive coping) aligned with a traditional model of coping. Reliability for the scale in this study was broadly acceptable with Cronbach's alpha ranging from .65 to .96 (Dusek & Danko, 1994). This factor structure was replicated among American adolescents (Mullis & Chapman, 2001).

Kurdek (1987) investigated the factor structure of the A-COPE for American boys and girls separately. Although the authors found five factors for each sample, their nature differed. For the male sample, factors represented agency ($\alpha = .89$), avoidance ($\alpha = .77$), religiosity ($\alpha = .62$), ventilation ($\alpha = .75$) and substance use ($\alpha = .73$); while for the female sample, factors represented agency ($\alpha = .88$), substance use ($\alpha = .77$), social support ($\alpha = .77$), ventilation ($\alpha = .73$) and solitary activity ($\alpha = .31$; Kurdek, 1987).

Using Singaporean adolescents with epilepsy, a recent study found a ten-factor structure for the A-COPE, with Cronbach alpha ranging from .45 to .90 (Chew, Haase, & Carpenter, 2017). Using an Australian sample, Fanshawe and Burnett (1991) advocated that a four-factor solution (negative avoidance, anger, family communication, and positive avoidance) with Cronbach's alpha ranging from .67 to .77. This factor structure was used in subsequent studies

(e.g. Howard & Medway, 2004; Shaunessy & Suldo, 2010). The Swiss study that used the A-COPE on French-speaking adolescents extracted a ten-factor structure with Cronbach's alpha ranging from .52 to .75 (Plancherel & Bolognini, 1995). Although the construct validity of the A-COPE is debated, the current study used the 12 subscales recommended by the original authors in order to explore the variety of adolescents' coping strategies.

Procedure

The study was conducted in accordance with the Australian Code for the Responsible Conduct of Research (2007) and with section 4.8 (People in other countries). After the school principals were provided with the study details and accepted the invitation to participate, communications were held between the primary researcher and school administration to organise a time for survey completion. In Australia and France, the cohorts were directed to the computer room where a link to the online survey package was provided. In both settings, participants were instructed to complete the self-administered task. The survey took approximately 15 minutes to complete.

Results

Preliminary analyses

Prior to conducting statistical analyses, the data set was checked for data entry errors and missing values. All analyses were then carried out using IBM® SPSS Statistics 25. A missing values analysis was performed and revealed that the dataset contained less than 10 percent missing values, which did not present a threat to data analyses (Bennett, 2001). A series of Shapiro-Wilk's tests showing significant deviations from univariate normality was indicated for some variables. However, similar to previous studies, visual inspection of histograms showed that the skew was mild to moderate and the data characteristics were typical of the population of

interest and in the expected direction. Transformation of the data had the potential to misinform analysis. Using Mahalanobis Distance with a critical value of (p = .001), 14 multivariate outliers were identified. Analyses were conducted with and without these cases, the results were found to not be substantially different, therefore these cases were retained. Additionally, Maximum Likelihood extraction was found to be robust to non-normal data, as such dealing with raw data was favoured (Lei & Wu, 2007). Visual inspection of the scatterplots suggested that the assumption of linearity was met. The assumption of absence multicollinearity and singularity were respected as there were no correlations above .80.

A-COPE Scores

Table 41 below presents the means and standard deviations on the A-COPE subscales for the entire sample, the Australian sample, and the French samples.

Table 41

Means and standard deviations on the A-COPE subscales for the entire sample, the Australian sample, and the French samples.

A-COPE subscales	Entire sample	Australian sample	French sample
Developing self-reliance	3.42 (0.58)	3.45 (0.58)	3.37 (0.57)
Seeking diversions	3.19 (0.57)	3.08 (0.55)	3.36 (0.54)
Developing social support	3.39 (0.63)	3.51 (0.59)	3.25 (0.65)
Solving family problems	3.00 (0.76)	3.01 (0.72)	2.98 (0.80)
Seeking spirituality	2.34 (0.94)	2.13 (0.97)	2.59 (0.81)
Investing in close friends	2.94 (0.97)	2.78 (0.87)	3.17 (1.04)
Seeking professional support	1.52 (0.79)	1.61 (0.79)	1.39 (0.74)
Being humorous	3.88 (0.84)	3.90 (0.85)	3.87 (0.82)
Engaging in demanding activity	3.41 (0.75)	3.49 (0.75)	3.28 (0.72)
Avoiding problems	3.31 (1.23)	1.82 (0.53)	2.07 (0.71)
Relaxing	3.74 (0.61)	3.87 (0.63)	3.56 (0.53)
Ventilating feelings	2.66 (0.68)	2.75 (0.63)	2.53 (0.72)

Created by the author, Camille Rault, 2020.

Construct validity: Confirmatory Factor Analysis (CFA)

Methodology and guidelines followed for the CFA were described in detail in study 5. As previously stated, fit-indices exceeding .90 (Bentler & Bonett, 1980) were desirable and measure of residuals would optimally be below .08 (MacCallum, Browne, & Sugawara, 1996).

Table 42 presents the results of the multi-sample analysis for the entire sample, and of CFAs for the French and Australian samples for the model of A-COPE. The chi-square of the

multi-sample analysis suggested a significant deviation from the data, χ^2 (99, N = 1,113) = 462.45, $p < .001$. As previously stated, the chi-square is notoriously sensitive and a ratio chi-square to degrees of freedom can be calculated to estimate the fit. The ratio value was 4, which indicated acceptable fit. The NFI, TLI, and CFI fell below .90, However, values as low as .80 have been suggested as a cut-off for the TLI (Hooper, Coughlan, & Mullen, 2008). The GFI indicated acceptable fit as did the RMSEA and the SRMR. These results supported the use of the A-COPE in these two samples. This model converged in six iterations.

The path between Relaxing and the latent variable was fixed[42]. The strongest path weights were recorded for Developing self-reliance, Developing social support, and Seeking diversions. These results indicated that these three coping strategies were the most representative of the adolescent participants. In contrast, Ventilating feelings and Avoiding problems recorded the lowest path weights, suggesting a greater variability in scoring, which may reflect a greater variation in use or lower endorsement of these coping strategies. Refer to for Figure 7 the A-COPE Model for the entire sample.

Maximum likelihood estimation suggested that the data significantly deviated from the simple model in France, χ^2 (48, N = 478) = 180.76, $p < .001$, and in Australia, χ^2 (48, N = 635) = 216.36, $p < .001$. The difference chi-square indicated that the model differed significantly, $\Delta \chi^2$ (1) = 35.60, p <.001 Indices for the French model were lower than expected but the residual values were considered acceptable. The Australian model presented higher fit-indices and lower residual values, indicating a better fit of the data. Both models converged in five iterations.

[42] As noted in study 5, path coefficients can be fixed to minimise the number of parameters to be estimated.

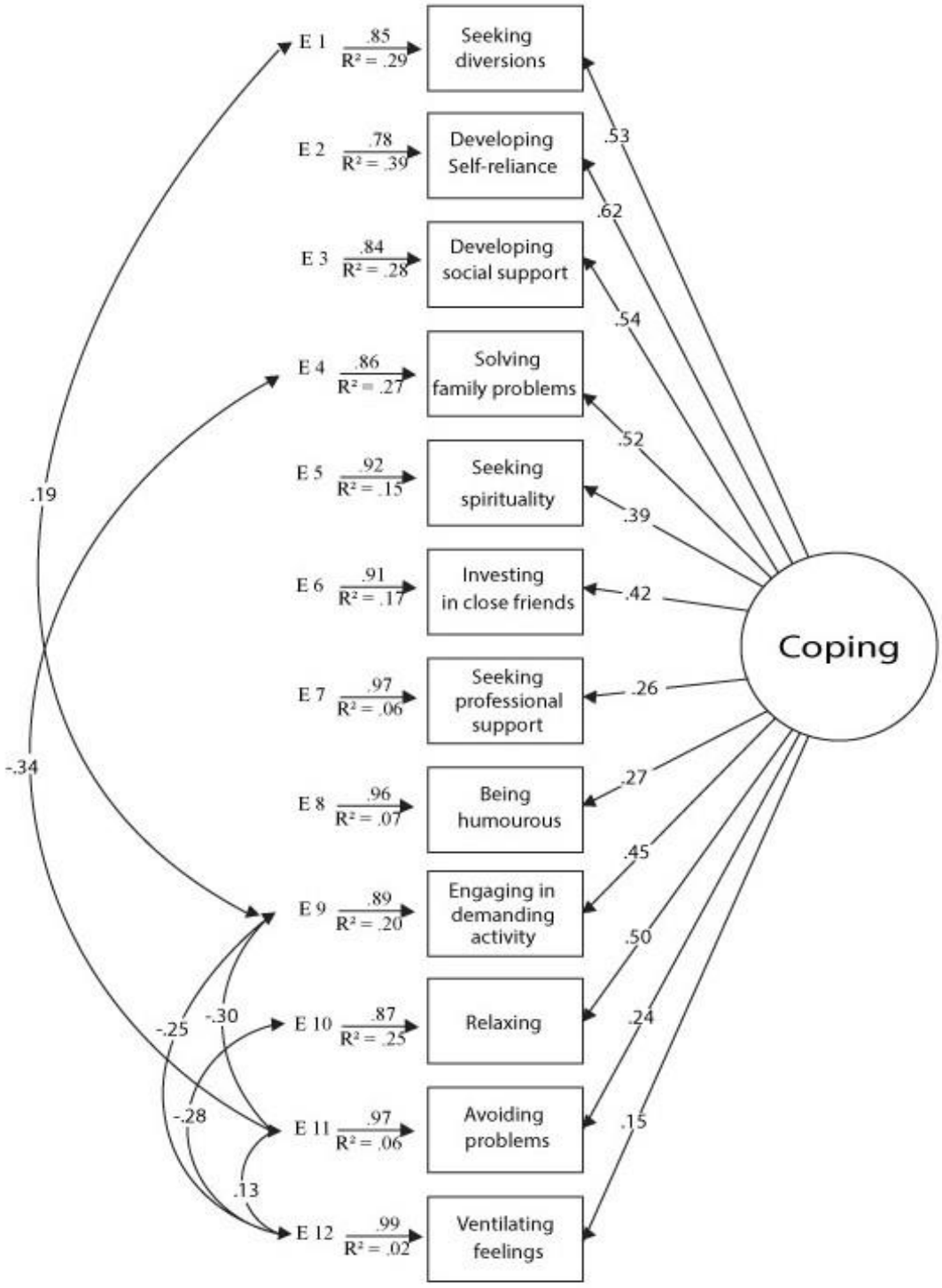

Figure 7. A-COPE Model for the entire sample

Created by the author, Camille Rault, 2020.

Table 42

Fit indices and residuals of the multi-sample analysis for the entire sample, and of the CFA for the French and the Australian samples on the model of adolescent coping

Parameters	NFI	TLI	CFI	GFI	RMSEA	SRMR
Entire sample	.83	.82	.86	.93	.06	.07
French sample (*N* = 639)	.79	.77	.83	.94	.08	.07
Australian sample (*N* = 714)	. 89	.88	.91	.95	.07	.05

Created by the author, Camille Rault, 2020.

Comparison of the French and the Australian model of adolescent coping

In the French model, the path between Relaxing and the latent variable was fixed. The strongest path weights were observed between Developing self-reliance and optimism, Developing social support, and Solving family problems and the latent variable of coping, while Ventilating feelings and Seeking professional help recorded the lowest path weights. All paths were positively related to coping. In order to improve the model, error terms correlations were added between the different coping strategies as can be seen in Figure 8. These associations were significant.

The Australian model was also computed with the Relaxing path fixed. The strongest path weights were observed between Developing self-reliance and optimism, Developing social support, and Seeking diversions and the latent variable of coping, while Ventilating feelings and Avoiding problems recorded the lowest path weights. These findings shared similarities with the

French model. However, the path weights in the Australian model were on average, higher values. In order to improve the model, error terms correlations were added between the different coping strategies as can be seen in Figure 9. These associations were significant.

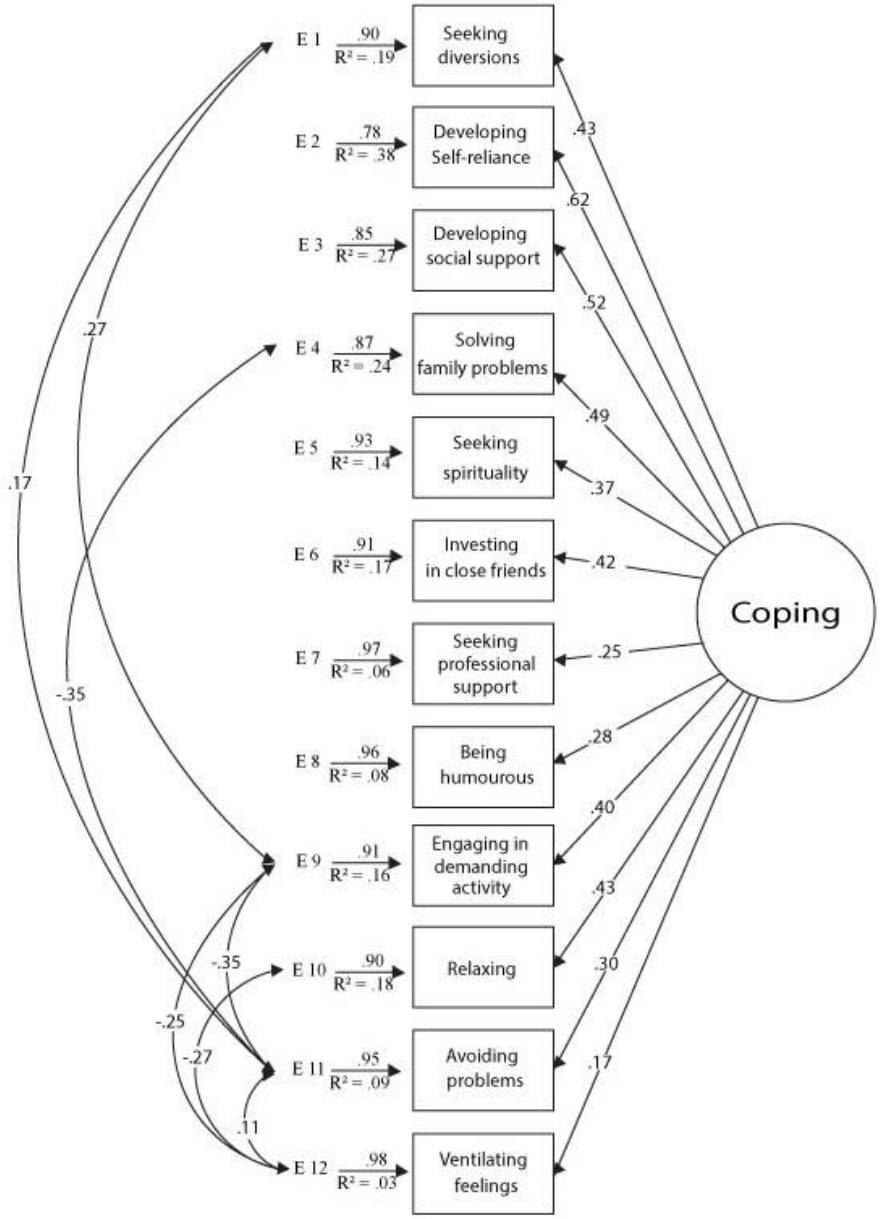

Figure 8. A-COPE model for the French sample. As previously described.

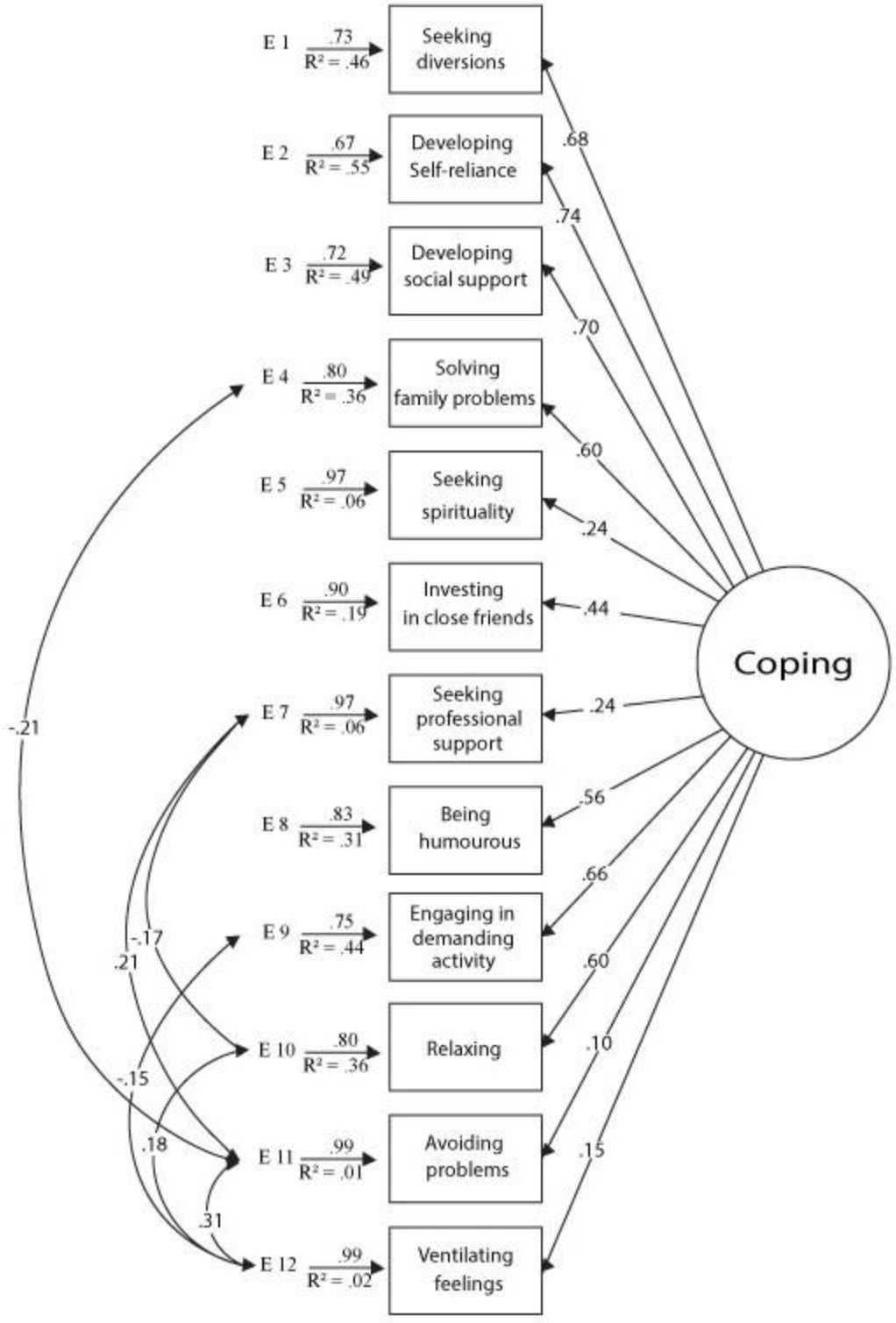

Figure 9. A-COPE model for the Australian sample Created by the author, Camille Rault, 2020..

Discussion

The construct of coping was investigated with French and Australian adolescents using the A-COPE. To test whether the use of the A-COPE was appropriate in both samples, a multi-sample analysis was conducted. This study aimed to examine the use of various coping strategies among French and Australian adolescents and to observe whether one context was more favourable to the use of adaptive coping strategies.

Prior to discussing the results found in this study, it was important to address the adjustment that was made to the scoring of the A-COPE. Although the construct validity of the A-COPE has been debated and studies have found that fewer factors could better represent the structure of the questionnaire, the current study used the 12-factor solution suggested by A-COPE's authors (Chew, Haase, & Carpenter, 2017; Fanshawe & Burnett, 1991; Howard & Medway, 2004; Shaunessy & Suldo, 2010). The 12-factor solution was adopted to maximise domain coverage in order to investigate a wider range of coping strategies used by adolescents. However, the standard scoring of the instrument was not used. The A-COPE authors' rationale for reverse coding some items presented a number of limitations. As indicated earlier, the authors made an arbitrary distinction between "telling yourself it is not an important issue" and "staying away from home" and described these avoidance behaviours as either positive for the first one and negative for the second. Consequently, they reverse-coded the item they assumed to be indicative of negative behaviours. However, in the current study, these two behaviours were considered to be indicative of similar avoidance behaviours without the distinction of being positive or negative. Item semantics and correlations between items within the subscales were examined prior to following the suggested scoring guide. This scoring adjustment was performed for three subscales, Avoiding problems, Ventilating feelings, and Relaxing. The decision to

adjust the scoring was supported by a marked increase in the Cronbach's alpha of the subscales. Nonetheless, internal consistency of the subscales was found to be low for several of these domains indicating that caution was needed in the interpretation of the results.

Supporting the first hypothesis, the fit indices indicated that the use of the A-COPE was adequate for both samples of adolescents. A review of the literature indicated that this was the first use of the A-COPE in France. The A-COPE had previously been used on a Swiss-French speaking sample (Plancherel & Bolognini, 1995), but never on French citizens. The multi-sample analysis showed that the A-COPE was appropriate for this cross-cultural investigation. Results showed that *Developing self-reliance and optimism* and *Developing social support* were the most representative coping strategies used by the whole sample of adolescents. The lowest path weights were noted for *Ventilating feelings* and *Avoiding the problem.* Inspections of the means on these subscales showed that the adolescent participants use adaptive coping strategies more frequently than maladaptive ones.

The CFAs showed that both adolescent models of coping had adequate fit as indicated by high fit indices and low residual values. The strongest path weights to the latent variable of coping in the French sample were for the subscales of *Developing self-reliance and optimism*, *Developing social support*, and *Solving family problems*. Although, the Australian model was comparable, the third largest path weight was observed for *Seeking diversions* instead of *Solving family problems*. These coping strategies were the most representative of the French and Australian model of adolescent coping. These differences supported the second prediction that stated that different path weights would reflect cultural influences. The mean scores for each subscale of the A-COPE were calculated and compared to the midpoint score (3, based on 5-

point Likert-type response). If the mean score obtained by the participants was greater than the scale midpoint score, it indicated that the sample predominantly used a specific coping strategy.

Developing self-reliance and optimism comprised of items which were reflective of adaptive and problem-focused coping strategies (e.g. “Organise your life and do what you have to do”, “Try to make your own decisions”, “Try to think of the good things in your life”). For both samples, the mean scores obtained indicated frequent use of this coping strategy, which provided a positive outlook on the coping profile of the population of adolescents studied in this research. To the extent that French and Australian cultures broadly differ on cultural indicators (Hofstede, 1980), it may be inferred that the observed differences in model fit reflected the influence of culture on coping. Based on Bronfenbrenner’s Ecological Systems Theory (1979), the different layers of the environment contribute to the development of the individuals, and therefore of the adopted coping strategies. The chronosystem and macrosystem can provide a context for the development of self-reliance and optimism for French and Australian adolescents. These two broad systems form a framework of the cultural factors that influence the exosystem, mesosystem and microsystem.

In the French culture, Developing self-reliance and optimism could be influenced by the need for adolescents to develop self-reliance early on in the face of hardship. Although there is an image of French culture being indulgent and romantic, the reality of the last decades has exposed French citizens to some hardship in their daily lives. The political climate since 2002 has indicated that tensions in the country have been arising with the extreme right party - the Front National - reaching to the final round of the presidential election. Since then, their place in the political landscape has become more visible and the 2017 election saw the Front National again in the final round against Emmanuel Macron. In addition to promoting ultra-conservative

values and closed borders principles, the Front National targeted the lower social working class. Growing and expanding over time, the lower social working class has been reporting feelings of being forgotten by the other major parties. This observation is not limited to France, as there has been an increase of extreme right parties and populism all over Europe. This phenomenon results in part from harsh living conditions and from a job market that permits a low minimum wage creating a class of working poor individuals. The most recent manifestation of this movement started in November 2018 with the "yellow vests" protests. This social movement received overwhelming support[43] of the general population and surprised French politicians by its violence and extent, which the protagonists justified by the experience of "daily social violence". However, the economical index did not paint such a bleak picture of France. Data from the OCDE (2019) indicated that France in 2016 had a Gini coefficient[44] of .29 and was the median country regarding income inequality among European countries. These economic indicators do not appear to support the perceived social climate felt by French citizens. It was therefore suggested that these measures did not have adequate domain-coverage, which did not allow for an accurate understanding of perceived social climate. French citizens generally tend to be passionate about their social rights and often protest in the streets to express their opinion. Nonetheless, the basis of the demands of the yellow vests stems from the average worker struggling financially from pay to pay, as well as increasing inequalities present in the country. A comparison of eleven European nations and the United States of America indicated that aside from the health domain, France recorded a larger than average inequality index on education,

[43] Some 71 percent of French people surveyed were supportive of the social movement in November 2018 (Ifop, 2018).

[44] The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality (OCDE 2019).

income, and wealth (Jurges, 2008). A clear link to the importance of social drivers to adolescent development is the involvement of high-schoolers with the yellow vests. They protested in the streets in December, as they felt that their future looked bleak in France. High-schoolers were demanding more government funding and consideration from politicians regarding the future of students. An international survey showed that only 22 percent of young French individuals (16 to 29 years old) considered "being free and having control on their future" and only four percent thought that "society's future is promising" (Stellinger & Wintrebert, 2008). French respondents were ranked second last and last, respectively on their level of endorsement of these positive statements out of 17 countries. Furthermore, France has experienced a number of terrorist attacks, the last one recorded at the time of writing was in Strasbourg in December 2018. As previously noted, classrooms are now equipped with posters on how to react in the event of a terrorist attack and a training session is organised during the school year to prepare students. These tragic acts add to the landscape of a morose country and remind adolescents of a grim reality. The combination of these factors was suggested to force adolescents to develop self-reliance.

In contrast, Australian culture has traditionally been orientated towards outdoor activities, with frequent exposure to nature. A program for adolescents experiencing a range of psychological distress symptoms was designed by a group of researchers in Australia. They found that exposure to the wilderness improved adolescents' negative symptoms (Bowen & Neil, 2016; Bowen, Neil, & Crisp 2016). A meta-analysis provided further evidence in support of the positive relationship between health benefits and interaction with nature for adolescents (Tillmann, Tobin, Avison, & Gilliland, 2018). In addition, Australia is considered a "sunny country", with most of the population living nearby the coast, prompting outdoor activities such

as going to the beach. A meta-analysis showed that sun exposure had a beneficial influence on mood, depressive disorders, and SWB (Veleva, Bezooijen, Chel, Numans, & Caljouw, 2018). One could speculate that these two aspects of Australian culture, frequent outdoor activities surrounded by nature and sunny weather, contribute to adolescents' optimism. Furthermore, the Australian "way of life" is considered by many around the world as attractive, supported by Australia ranking third out of 189 countries on the Human Developmental Index[45] (United Nations Development Programme, 2018). It could be said that Australia offers its inhabitants a healthy physical environment that promotes a way of living ranked highly by world standards. Melbourne has been ranked the most liveable city in the world on seven consecutive occasions. The respondents in this study were drawn from Melbourne schools (Economist Intelligence Unit, 2017).

Australia has a history of entrepreneurship, with icons such as Rupert Murdoch (Arsenault & Castells, 2008) and Gina Rinehart (Ferguson, 2012), establishing an Australian presence at the forefront of the international business world. Additionally, it is a culturally favourable attribute to show initiative, and Australian innovations such as the Owen Sub Machine Gun (Haycock & Ross, 1987), and the WiFi (Jungnickel, 2013), have shown to be successful. This positive environment, described in the previous section coupled with Australians that can be characterised as "go-getters", fosters an environment in which young Australians are encouraged to consider study and job options without major limitations. These favourable conditions could be contributors to individuals having stronger self-reliance, because early in life, Australians understand that they can create their own success. The most recent report from

[45] The Human Developmental Index is calculated based three indicators, income distribution and poverty, life expectancy and inequality, and literacy and education (Anand & Sen, 1994).

Mission Australia (2018) indicated that 65 percent of teenagers graduating school intended to go to university, while 33 percent intended to enter the workforce and less than one percent reported having no choice available to them. Additionally, the international image of Australia as the land of ex-convicts accompanied with the folklore of movies representing “a land of larrikins” that could be said to have created a culture in which individuals need to take care of themselves. From these observations, Australian adolescents’ use of Developing self-reliance and optimism appear to be congruent with the values of the culture. From this anecdotal analysis of the two cultures, we can see the potential reasons for French and Australian adolescents adopting self-reliance and optimism as coping strategies differ. However, they might in both cases respond to environmental factors linked to the chronosystem and macrosystem.

Developing social support, which was measured on items such as “Talk to a friend about how you feel”, “Try to keep up friendships or make new friends” and “Apologise to others” is also representative of an adaptive coping strategy. Both samples obtained a mean score on this domain greater than the midpoint of the Likert-type response scale, which provided a positive picture of adolescents’ coping style. As previously discussed, adolescence in Western culture is seen as a period of growing autonomy (Feldman & Rosenthal, 1991). In Australia and France, most parents would allow their adolescent to spend more time with peers alone. Consequently, adolescents begin to form stronger bonds with their peers, and in both countries, friends were identified as the first point of contact when facing issues (Mission Australia, 2018). In France, it is common that students “hang out” in groups around the school when it finishes.; OpinionWay, 2016 This unsupervised time would be an ideal time and place for adolescents to share their struggles with each other. Australia has a culture of “mateship”, which is an expression referring to equality, loyalty, and strong friendship bonds. A classic illustration of bonding tradition was

described in the verse novel *The Songs of a Sentimental* Bloke written by Dennis in 1915. This book was later adapted into a movie and is considered by some of the greatest Australian books. It was suggested that this mateship culture may foster the development of strong bonds between teenagers. This finding aligned with the literature that posited that friendships were crucial for adolescent development (Erikson, 1993; Park, 2004; Tetzner, Becker, & Maaz, 2017) and contributed to the knowledge base by showing that support from friendships is also a way of coping used by adolescents.

The third most reflective domain of coping for the French students was Solving family problems. This domain included items such as “Talk to mother about what bothers you”, “Talk to a brother or sister how you feel” and “Try to reason with parents and talk things out; compromise”. This domain was reflective of a positive strategy of coping and the French sample recorded a mean equivalent to the midpoint of the Likert-type response scale. The current study was conducted in the South - Eastern part of France, where the family dynamics could resemble the dynamics of Southern European countries (Italy, Greece, and Spain). France is usually characterised as a Northern European country along with Germany (Minguez & Crespi, 2017). This classification is due to the country’s attitude towards family welfare regime, gender equality to employment, model of public law, and the place of the church in the state (Martin, 2017; Minguez & Crespi, 2017). However, when family dynamics were studied, France was closer to the Southern European countries (Baumesteir & Sala, 2015; Berton, Bureau, & Rist, 2017; Martin, 2017). These dynamics could be described as high involvement in the family members’ life, sharing important personal information, and allowing parents to be involved in the adolescent’s life (Berton, Bureau, & Rist, 2017). In addition, it is the cultural norm for French families to sit around the table for dinner every night. During this time, family member’s daily

lives are discussed, as well as potential issues that one may be encountering. These routine dinners have been suggested to create positive interactions, family cohesion, and form strong bonds (Fulkerson, Neumark-Sztainer, & Story, 2006; Larson, Neumark-Sztainer, & Story, 2007; Hannan, Marquenie, Rodger, Mangohig, & Cronin, 2011). Although Australian adolescents' scores were comparable on this subscale, observation of the two cultures indicated behavioural differences. Although communal family time and eating was common in Australia in the past, this custom has decreased gradually with more families introducing television watching during the meal and allowing adolescents to eat at their convenience (Utter, Scragg, Schaaf, & Ni Mhurchu, 2008; Van Zutphen, Bell, Kremer, & Swinburn, 2007). These cultural factors surrounding familial context could have contributed to French adolescents using their family support as a coping style by sharing more of their personal challenges.

In contrast, Seeking diversions was the third strongest path weight to coping for Australian adolescents. This domain was calculated on items such as "Go to the movie", "Go shopping, buy things you like", and "Work on a hobby you have". This strategy could be classified as avoidant coping and therefore maladaptive. The mean obtained by the Australian sample was higher than the midpoint of the Likert-type response scale. Although the Australian model showed Seeking diversions was the third more reliable indicator of Australian adolescents, it was interesting to note that French adolescents used this strategy more often. Some aspects of Australian culture may contribute to adolescent use of this coping style. For example, Australia is ranked third on the ratio of Gross Lettable Area (GLA)[46] meter square per 100 inhabitants. Australian shopping centres are designed to offer lifestyle and often combine big brand shops, boutiques, food courts, restaurants, cinema and outside areas in which the clientele

[46] GLA denotes area dedicated to shopping centers in regional, sub-regional, neighbourhood, and central business center areas.

spend a significant amount of leisure time. These multi-service complexes have created a cultural habit for Australians to visit shopping centres on weekends. Modelling from their parents' behaviour, adolescents may have integrated that meeting friends at the shopping centre to either shop or watch a movie was a way to keep busy and could also be used when distractions from distress were needed. Such an observation would be difficult to make in France. The shopping centres are much simpler and often include shops and a limited number of takeaway places. In addition, French laws prohibit work on Sunday, and therefore, it is not part of the culture to spend leisure time in shopping centres.

The Seeking diversions domain relates to participants avoidance coping strategy by engaging in pastimes. Playing a sport is a very popular pastime in Australia and a pillar of Australian culture. The Olympic games have been held on two occasions in Australia, in Melbourne (1956) and Sydney (2000). Cricket is considered as a national sport, and Australian football rules is followed closely, especially in Victoria. In addition, there are several Australian professional athletes known internationally in various fields, Lleyton Hewitt in tennis, Ian Thorpe in swimming, Catherine (Cathy) Freeman in track and field. This influence of sport in the culture can be seen in parks or on the beaches where individuals are jogging, practising yoga, or surfing, which are all part of the Australian landscape. Further evidence of sport's place in Australian culture is the number and availability of gym establishments. Most of these are open seven days a week and run 24 hours per day.

In comparison, French culture is dissociated from the practice of sport. An opinion survey was asking individuals to name a few words by free association when they heard "France", most typical answers were culture, art, and romance. It was reasonable to suggest that when participants named culture, they did not picture a sporting French culture (Malsallez &

Senges, 1995). This is not to say that France does not count renowned French athletes but their impact on the culture has not translated to individuals doing more sports. However, it is important to note that France seems to be undergoing a change. For a while, jogging and exercising were considered by the general population as vain. More recently, it has become more socially acceptable and increasingly popular to jog and exercise. Following this trend, gym businesses have started to open all over France. However, they are often closed on weekends and have restricted opening hours in contrast to the Australian experience. It appears that French individuals are changing their perceptions of exercise. These differences indicate that Australian promotes seeking diversions. Although, in terms of lifestyle this could be seen as an advantage, it can become a concern when adolescents use these habits as avoidance behaviours.

The lowest path weights in the French sample were for the subscales of *Ventilating feelings* and *Seeking professional help*. By contrast, in the Australian sample, the lowest path weights were recorded for *Ventilating feelings* and *Avoiding the problem*. The scores obtained on the *Ventilating feelings* subscales by the two groups were marginally lower than the midpoint of the Likert-type response scale, which indicated that both samples did not heavily rely on this maladaptive coping strategy. *Ventilating feelings* was measured on items such as “Get angry and yell at people”, “Swear”, and “Let off steam by complaining to your friends”. There is a stoicism embedded in the Australian culture, which can be traced to the time of convicts illustrated in Mortlock (1965) writing by the expression “suffer in silence”. In modern slang, the expression “Have a cup of concrete and harden up” reflects that tendency to not express personal issues. One of the many French stereotypes is that French individuals are rude, arrogant, and have a quick tendency to complain (Rosenthal, 1999; Weber, 1990). However, stereotypes were often found to be incorrect and caricatural (Jost & Hamilton, 2005; Rosenthal, 1999; Weber, 1990).

The results proposed that young French individuals did not use ventilating as a coping strategy. Alternatively, participants responded in a desirable manner and did not want to disclose such behaviours.

The lowest path weight in the French model was demonstrated with *Seeking professional help*, tested on the two items "Get professional counselling" and "Talk to a teacher or a counsellor at school about what bothers you". The scores on this subscale were below the midpoint of the Likert-type response scale, suggesting less frequent use of this coping strategy. This finding could be explained by two reasons. First, in France, counsellors and psychologists are not part of the benefits scheme, even with private health insurance. As such, the image of the professions is not fully considered as a health practice. There is no accredited board for psychologist and counsellors, and to obtain a degree in these areas, individuals still need to attend arts departments at universities. The consequences are that some French citizens still hold the image of a "shrink" and of a pseudo-science. Second, within the school context, the availability of school counsellors is limited. Often there is only one position across three schools, which means that the school counsellor is only available one and a half day a week for an entire school[47]. In contrast, in Australia, the professions of psychologists and counsellors are highly regarded and supervised by health authorities. Consultations from these practitioners can be claimed to health insurance providers, and school counsellors are part of the staff of the school.

In addition, as previously explained, the relationship between teachers and students in France is rarely a close one. On the items "I feel understood by my teachers", "I receive the support that I need at school", and "I have a good relationship with my teachers", French

[47] This was true for four out of the five schools surveyed in France.

students scored consistently lower than the Australian students. This is not to say that some students do not confide to their teachers, but this would be more an exception than a generality. Relating to Hofstede's (1980) cultural indicator of power distance, the French school system enforced the hierarchy between teachers and students and this environment does not necessarily foster open communication. In addition, as previously stated, the teacher-student relationship in Australia appears to be allowing for more inter-personal communication. The students may have the same teachers for different subjects, increasing the numbers of face-to-face interactions. Moreover, average classroom density is higher in French classrooms (25 students per class) than in Australian ones (21 students per class), potentially limiting the development of more in-depth relationships (OECD, 2016). In addition, Australian schools have been paying attention to the students' well-being.

The lowest path weight in the Australian model was demonstrated with Avoiding problems, which included items such as "Use drugs", "Tell yourself the problem is not important", and "Drink beer, wine, liquor". Mean scores for both samples were lower than the midpoint of the Likert-type response scale, indicating rare use of this coping strategy. Australian adolescents' consumption of alcohol has been on the decline since 1998 (AIHW, 2017; Hodder et al., 2018; Kelly et al., 2016), nonetheless risky drinking behaviours are still reported by studies (Berends, Jones, & Andrews, 2016; Mattick et al., 2018; Trapp, Knuiman, Hooper, & Foster, 2018). Qualitative interviews with Australian adolescents related that some individuals drank to feel better and forget about their depressive moods (Berends et al., 2016). Additionally, although drug use among young individuals is lower than in 2001, recent trends show drug consumption for the 14 to 19 age group has been steady (AIHW, 2019). It is therefore important that although this coping strategy may not be used frequently by adolescents, it remained an area of

investigation to document the most vulnerable population. Nonetheless, the item within the Avoiding problems subscales that received a higher level of endorsement was the one pertaining to downplaying the importance of the problem. This result could reflect the positive attitude that Australian culture vehicles.

The results indicated that the A-COPE for an Australian and French population of adolescents were psychometrically valid. However, there were differences between the models and the scales were not consistently of the same quality. The CFA demonstrated that Australian and French adolescents shared some similarities in their profile of coping. Both samples shared the strongest paths with Developing self-reliance and optimism and Developing social support. However, based on Ecological Systems Theory, the potential reasons for the use of these coping strategies may stem from different aspects of the culture. The macrosystem would influence behaviour directly and indirectly through the microsystem relationships. Australian and French adolescents differed on their third largest paths to coping, with the Australian sample sharing it with Seeking diversions, while the French sample shared it with Solving family problems. For both models of coping, the second lowest path was recorded with Ventilating feelings and cultural differences could explain this finding. The lowest recorded path weight also differed as it was Avoiding problems for the Australians and Seeking professional help for the French. It was possible to explain these differences by the influence of culture.

This chapter addressed the profile of adolescent coping in Australia and France and reflected differences that might have arisen from cultural influences. The next chapter examines the model of adolescent's well-being and coping across these two cultures.

Chapter 8

Study 7: SWB and Coping

The previous study investigated coping strategies among Australian and French adolescents. Results showed that the samples shared some similarities in their coping profile, specifically on the two most reliable indicators of coping, *Developing self-reliance and optimism* and *Developing social support*. However, the two samples differed on some aspects, *Seeking diversions* was the third most reliable indicator of coping for the Australian sample, while it was *Solving family problems* for the French sample. The potential explanations for the use of specific coping strategies were suggested to find its root in cultural background.

As previously stated, there is no established adolescent coping model in relation to SWB in the relevant literature. The broad research goal of the current study is to develop an appropriate model that can be applied to adolescents in both Australia and France. To do so, the current study used a Structural Equation Modelling (SEM) to assess the fit of the hypothesised model, in which domains of SWB and coping strategies (measured variables) that are representative of the latent variables of SWB and coping would predict country (measured variable). This investigation allowed to test how well the data collected fitted a model of adolescent development and to assess whether the constructs could predict country of origin. SEM relies on the same criteria that CFA to evaluate the fit of a model (described in study 5). Considering that this study is of exploratory nature, there was not a specified prediction on these differences. Furthermore, an investigation was conducted to test whether the samples could be classified based on their scores on coping and SWB. As a convergent operation, a Discriminant Function analysis was performed to evaluate the unique contribution of each indicators of SWB and coping in the differentiation of the French and Australian samples.

Method

Participants

The current study also utilised the data gathered from the samples used in the previous studies. There were 714 Australian adolescents (376 females, 321 males, and 17 not specified) and of 639 French adolescents (370 females, 258 males, and 11 not specified). There was no significant difference in gender distribution, $\chi^2(2) = 2.64$, $p = .267$. The Australian adolescents were aged between 12 and 18 ($M = 15.28$, $SD = 1.08$) and the French adolescents were aged between 10 and 19 ($M = 14.13$, $SD = 2.02$). The two samples differed significantly on age $t(959) = 12.79$, $p < .001$.

Materials

Comprehensive Adolescent Measure of Well-Being (CAMWB: Rault, Unpublished).

CAMWB is a multidimensional self-report instrument measured adolescent SWB across several domains including Self-Appraisal, Peer Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Negative Emotions, Health Satisfaction/ Dissatisfaction, and Worries. Participants were asked to rate their level of agreement with the items on a Likert-type response scale ranging from 1 *Never* to 6 *All the time.* Higher scores on the scale indicated higher levels of well-being and for each subscale higher scores indicating higher levels of the construct being measured. The scoring of the Australian instrument was based on 45 items, while the French version only included 44 items[48] (refer to study 3 and 4).

[48] Mean scale scores were used therefore the disparity in items did not overly influence interpretation.

Items were generated based on prior literature and open-ended questionnaires using a focus groups of students from Australia. A panel of experts in Australia and France reviewed the items and assisted with further item generation. The questionnaire was translated and back-translated to ensure cross cultural validity . The latest version of the CAMWB was piloted by a group of young French students and was found to be an adequate measure of adolescent's SWB. While the results of the exploratory factor analysis showed that the factor measure Health was a measure of health satisfaction for the Australian sample, the French version was originally labelled and computed in a way of measuring health dissatisfaction. However, for ease of comparison with the Australian sample, the health dissatisfaction factor was reversed to mirror the Australian domain. The composite score of the French CAMWB was computed using the reflected health factor. Construct validity was tested in a French and an Australian sample. Cronbach's alpha for the factors ranged between .56 and 79 for the French sample and between .66 and .85 for the Australian sample. The overall Cronbach's alpha for the scale was .84 for the French sample and .91 for the Australian sample.

Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987).

As previously described.

Procedure

The study was conducted in accordance with the Australian Code for the Responsible Conduct of Research (2007) and with section 4.8 (People in other countries). After the school principals were provided with the study details and accepted the invitation to participate, communications were held between the primary researcher and school administration to organise a time for survey completion. In Australia and France, the cohorts were directed to the computer

room where a link to the online survey package was provided. In both settings, participants were instructed to complete the self-administered task. The survey took approximately 15 minutes to complete.

Results

Preliminary analyses

Data used in the study had been previously cleaned and check for assumptions. As previously stated, the data deviated from normal distribution and some missing data was present. However, the use of EQS 6.1 (Bentler, 2005) with Maximum Likelihood (Joreskog, 1977) as an estimator was robust to non-normal data. Additionally, when data is missing EQS automatically produces a solution using Full-Information Maximum Likelihood (Finkbeiner, 1979). This approach is desirable because no further data imputation is needed, and no loss of cases occurs (Lei & Wu, 2007). This is regarded as being the most suitable way of dealing with missing data in the relevant literature. (Schafer & Graham, 2002).

Structural equation modelling

To test whether the model of adolescent' SWB and coping could differentiate country, a structural equation modelling was conducted. The model significantly deviated from the data $\chi^2(118, N = 1353) = 675.12, p < .001$. However, the fit indices indicated acceptable fit[49], with the NFI = .90, the TLI = .85, the CFI = .92, and the GFI = .95. The residual values were below the recommended cut-off, further supporting adequate model fit, SRMR = .07, RMSEA = .07. The model converged in ten iterations (refer to Figure 10). Countries were dummy coded, and Australia was assigned a 0.

[49] The recommended standard for the fit indices were .90, and below .08 for the residuals.

Coping significantly differentiated country and was associated with Australia. The path with Avoiding problems was fixed. The strongest path weights with coping were Developing self-reliance, Developing social support, and Relaxing. Seeking spirituality and Ventilating feelings presented with weakest path weights to coping. These results shared similarities with the CFA of the A-COPE for the Australian sample

SWB significantly differentiated country and was associated with France. The path with Self-Appraisal was fixed. Self-Appraisal, Family Satisfaction, Negative Emotions, and Health Satisfaction shared to strongest path weights with SWB. Exposure to Bullying was associated with the lowest path weight to well-being. These results shared similarities with the CFA of the CAMWB for the French sample. Seeking diversion, Seeking spirituality, Investing in close friends, Avoiding problems, School Satisfaction, and Worries shared a positive covariance with country, which indicated that they contributed to the differentiation of France. The results of this analysis supported cross-cultural differences between the two samples on coping and SWB.

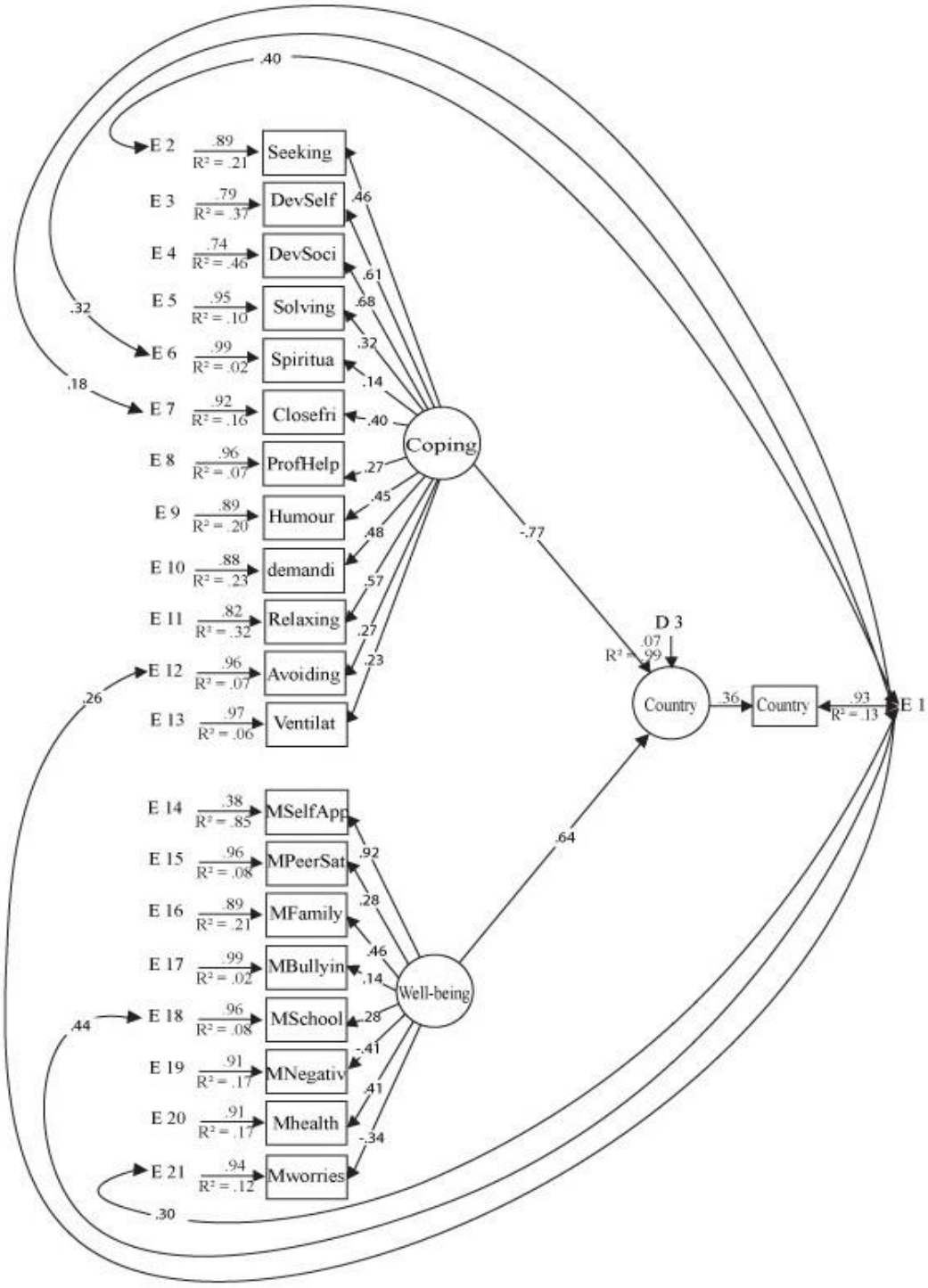

Figure 10. Structural equation modelling of adolescent coping and well-being in Australia and France.

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Discriminant function analysis

Australia *versus* France

While the SEM demonstrated that coping and SWB differentiated between France and Australia, the unique impact of individual indicators remained unknown. Consequently, to further test the hypothesis that Australian and French adolescents differed on their SWB and coping behaviours a discriminant function analysis was conducted[50]. This approach served as a convergent operation in order to strengthen the outcomes of the study. Discriminant function analysis finds the best weighted linear discriminant function to differentiate groups. Mean substitution was employed for the analysis. One discriminant function was found. The group prediction was successful with 642 out of 714 Australian correctly identified as Australian (90%), and 470 out of 639 French correctly identified as French (74%). The Jack-Knife classification rate[51] reported similar values, 90 percent for the Australian classification and 72 percent for the French classification, indicating a satisfactory group membership prediction. Overall, the cases correctly classified was 82 percent.

The first discriminant function was statistically significant, $\Lambda = .49$[52], $\chi^2(20, N = 1353) = 773.05$, $p < .001$. The value of the Wilk's lambda and the amount of variance accounted by the

[50] Fisher (1936) found that weighing an identified combination of n variables into a function would yield the optimum result to discriminate between two groups. The function represents the highest ratio of sum of square between-groups to the sum of square within-groups for the combination of a given number of variables. The discriminant function would have the larger ratio value than for any other linear function of the other variables (Tatsuoka & Tiedeman, 1954). Fisher named that function, discriminant function. The purpose of the discriminant function is to differentiate between two groups based on a linear combination of ratios of x variables (Deakin, 1972).

[51] Jack-Knife classification rates indicates the results of the discriminant function analysis when it has been performed leaving one case out to attenuate the impact of the outliers.

[52] The Wilk's Lambda value tests whether the groups differ on the combination of the variables, in other words it acts similarly as an F-test in an analysis of variance. A value of Wilk's approaching 1 would indicate that the means of the groups are close to equal, while a value approaching 0 would indicate that the variability within-group is small compared to the between-group, hence pointing towards a large mean difference between the groups.

function indicated that the discriminant function separated Australian and French participants. The canonical correlation was $R_{canonical}$ =.72, indicating that the first discriminant function accounted for 52 percent of the variance in group membership.

The unstandardised canonical discriminant centroids[53] were 1.22 and - 0.87 for the French and Australian sample, respectively. Variables with a negative weight in the discriminant function were more characteristic of the Australian adolescents, while variables with a positive weight in the discriminant function were more characteristic of the French adolescents. Standardised canonical discriminant function coefficients are presented in Table 45. The strongest discriminator was School Satisfaction (F(1, 1078) = 165.97, p <.001), with a weight value about 1.63 times larger than the next largest magnitude value on this side of the function, Relaxing (F(1, 1078) = 73.06, p <.001). Inspection of the means showed that the Australians scored higher on the School Satisfaction and the Relaxing subscales. The third largest positive discriminator was Ventilating feelings (F(1, 1078) = 27.36, p <.001), on which Australians scored higher than the Frenchs. Engaging in demanding activity (F(1, 1078) = 20.02, p <.001), Developing social support (F(1, 1078) = 48.52, p <.001), Seeking professional support (F(1, 1078) = 22.47, p <.001), and Developing self-reliance and optimism (F(1, 1078) = 4.58, p =.033).

On the positive side of the function, two variables obtained a similar weight, Seeking diversions (F(1, 1078) = 67.78, p <.001) and Health Satisfaction (F(1, 1078) = 103.72, p <.001). French adolescents scored higher on the Seeking diversions and Health Satisfaction subscales. The third largest positive discriminator was Self-Appraisal (F(1, 1078) = 34.67, p <.001), and the

[53] Centroids – mathematically equivalent to function means.

French students obtained a higher score on this subscale. Investing in close friends ($F(1, 1078) = 43.84$, $p < .001$), Seeking spirituality ($F(1, 1078) = 68.57$, $p < .001$), Avoiding problems ($F(1, 1078) = 43.43$, $p < .001$), and Negative Emotions ($F(1, 1078) = 7.58$, $p = .006$) contributed to the discrimination between the French and the Australian sample. There were significant univariate differences for Peer Satisfaction ($F(1, 1078) = 12.02$, $p = .001$) between the two groups. However, it should be noted that the standardised discriminant function weights approached zero indicating that the groups converged towards each other.

The remaining variables, Worries ($F(1, 1078) = 1.16$, $p = .281$), Solving family problems ($F(1, 1078) = 0.52$, $p = .470$), Family Satisfaction ($F(1, 1078) = 0.19$, $p = .664$), Exposure to Bullying ($F(1, 1078) = 2.34$, $p = .127$), and Being humorous ($F(1, 1078) = 0.44$, $p = .509$) did not show significant results in the discriminant function. Refer to Table 43 for means and standard deviations for the variables used in the discriminant function analysis.

Table 43

Standardised canonical discriminant function coefficients, Means and standard deviations on the CAMWB subscales and the A-COPE subscales for the Australian and French samples

	Discriminant Function	Australia	France
		M (SD)	M (SD)
School Satisfaction	-.62	4.53 (0.73)***	3.91 (0.82)
Relaxing	-.38	3.87 (0.63)***	3.56 (0.53)
Ventilating feelings	-.36	2.75 (0.63)***	2.53 (0.72)
Engaging in demanding activity	-.29	3.49 (0.75)***	3.28 (0.72)
Developing social support	-.24	3.51 (0.59)***	3.25 (0.65)
Seeking professional support	-.20	1.61 (0.79)***	1.39 (0.74)
Developing self-reliance	-.13	3.45 (0.58)*	3.37 (0.57)
Seeking diversions	.52	3.08 (0.55)	3.36 (0.54)***
Health Satisfaction	.50	4.07 (0.83)	4.60 (0.88)***
Self-Appraisal	.36	4.39 (0.90)	4.70 (0.80)***
Investing in close friends	.26	2.78 (0.87)	3.17 (1.04)***
Seeking spirituality	.26	2.13 (0.97)	2.59 (0.81)***
Avoiding problems	.24	1.82 (0.53)	2.07 (0.71) ***
Negative Emotions	.14	3.31 (0.76)**	3.18 (0.89)
Peer Satisfaction	.03	4.26 (0.78)	4.43 (0.85)**
Worries	.10	3.64 (0.85)	3.58 (0.96)
Solving family problems	.09	3.01 (0.72)	2.98 (0.80)
Family Satisfaction	-.07	4.61 (0.94)	4.59 (0.89)
Exposure to Bullying	.06	3.00 (1.03)	3.10 (1.23)
Being humorous	.02	3.90 (0.85)	3.87 (0.82)

Note. * denotes significantly higher means (Fishers' test, $\alpha = .05$; ** = .01; *** = .001). Created by the author, Camille Rault, 2020.

Discussion

This study developed a model of adolescent coping and SWB for Australia and France. In addition, an investigation was conducted to to ascertain whether certain coping styles and SWB domains were indicative of nationality. As expected, the two samples differed on several indicators.

The structural equation modelling demonstrated that coping was significantly associated with Australia and the strongest path weights were demonstrated for Developing self-reliance and optimism, Developing social support, and Relaxing. The first two indicators were the same than in the CFA solution of the A-COPE presented in study 6. However, the third path was different, as previous findings showed that Seeking diversion was the third strongest path. SWB was significantly associated with France and the strongest path weights were demonstrated for Self-Appraisal, Family Satisfaction, Negative Emotions, and Health Satisfaction. These results were different from the outcomes of the CFA in study 5 where Negative Emotions, Worries and Self-Appraisal were the best indicators of SWB. It was also noteworthy that Seeking diversion, Seeking spirituality, Investing in close friends, Avoiding problems, School Satisfaction, and Worries shared a positive covariance directly to the country, suggesting an association with France. The results of the discriminant function analysis (described below) confirmed these associations, except for School Satisfaction. This indicator of SWB was more characteristic of the Australian sample. These discrepancies between models call for further investigations.

The structural equation model showed the differential impact of coping and SWB as constructs between countries but did not reveal the role of individual predictors. The covariance of Seeking diversion, Seeking spirituality, Investing in close friends, Avoiding problems, School Satisfaction, and Worries indicated that individual variables might have roles in the

differentiation of cultural groups beyond the latent variables. Consequently, a discriminant function analysis was conducted to follow up these results. The results of discriminant function analysis showed that School Satisfaction, Relaxing, and Ventilating feelings were the three most discriminant variables for the Australian sample, while Seeking diversion, Health Satisfaction, and Self-Appraisal were the three most discriminant variables for the French sample.

School satisfaction was the most important discriminant variable in the discriminant function analysis. Its weight indicated that it contributed significantly to the classification of Australian students from the French students. This result corroborated a finding of study 5 that indicated School Satisfaction was the second most important contributor to Australians' SWB. Inspection of the means on this variable showed that Australians students scored higher on School Satisfaction than the French students. Relationships with teachers were identified in study 4 as the most important aspect of School Satisfaction for both samples and showed that Australian students reported better relationships with their teachers. The results of the current study also support the findings in previous literature. As previously stated, student-teacher relationships were found to foster a positive learning environment and assist students in developing academic competencies as well as social and emotional skills (Aldridge & McChesney, 2018; Gregory et al., 2018; Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Positive relationships between teachers and adolescents were important for adolescents' adjustment (Al-Yagon & Margali 2013; Britzman 2012; de Boer et al., 2010) and were linked to higher academic achievements (Allen, Witt, & Wheeless, 2006; Gonzales, Oriol-Granado, 2016; Pianta, Steinberg, & Rollins, 1995).

In accordance with the findings of the current study, recent Australian research has highlighted the importance of developing strategies to promote schools as positive education

institutions (Gregory et al., 2018; Halliday, Kern, Garrett, & Turnbull, 2018; Lawrence et al., 2016; Slemp et al., 2017). According to Lawrence et al. (2016), this initiative started after the first international survey of children and adolescents' mental health and well-being initiated by Australia in 1998. The results provided a foundation to reform the approach to mental health for young individuals. Subsequently, increased funding for school counsellors and well-being coordinators have increased (Faulkner, 2007), and personal and social competencies such as self-regulation and resilience have been integrated into the Australian national curriculum (ACARA, 2013). A longitudinal study conducted by Gregory et al. (2018) collected data from 90% of government schools from South Australia collected data on students' well-being (Gregory et al., 2018). This high participation rate stemmed from principals and school-teachers understanding the importance of students' well-being within the learning environment and the development of social and emotional skills (Gregory et al., 2018). In contrast, this shift toward social and emotional development has only just been initiated in France and remains under-researched. ~~An illustration of~~ This discrepancy can be seen in a systematic review conducted by Aldridge and McChesney (2018) who investigated the relationship between school climate and adolescent well-being. Out of their sample of 48 studies, seven came from Australia (15%), which was the second most represented country after the United States. In contrast, there was only one study conducted in France that met their inclusion criteria. As previously stated, the power distance (Hofstede, 1980) that characterises France is reflected in the student-teacher relationships and might not provide the most favourable environment to develop positive relationships. Furthermore, the importance and amount of research into adolescent SWB and coping in the education system was also evident in the results of the current study. Eighteen schools were contacted in Victoria to participate in the research, most of them were already engaged in several

studies and could not add more load to their students. Conversely, in France, five out of the eight schools that were contacted responded positively and there was a novelty effect of having research conducted in their institution.

There was also a difference noted between the two samples on their responses targeting school safety. Twenty-nine percent of French students reported not feeling safe at school while only five percent of Australian students reported a similar feeling. This is an important factor as one of the bases of developing positive education should rely on safety (Aldridge & McChesney, 2018). The results from the French data suggested that feeling unsafe at school could have been related to the experience of negative emotions. Research on school climate identified that some students did not feel safe at school and that these feelings were underestimated by adults (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). It is therefore important to ensure that policies in place for education institutions provide clear guidelines on developing safe spaces and address students' concerns.

The French education system places a great emphasis on academic performance as measured on student achievements in core subjects such as literacy, mathematics, history, geography and English (Coulangeon, 2018). In contrast, the Australian curriculum offers a diverse range of subjects such as Psychology, Legal studies, Hospitality studies, Hair and Beauty, and Aerospace studies. As such Australian students reported being more satisfied with their subject choices compared to the French students. It may be that the variety of available subjects fosters an environment in which adolescents feel they can "fit in". This is an important desire for this age group (Steinberg & Morris, 2001). By offering a number of vocational and recreational subjects as well as traditional academic subjects Australian high schools may provide a learning environment that caters to a wide variety of student skills and interests, rather

than focusing purely on traditional academic subjects which may not be suitable for the goals and interests of all students. A possible explanation for the differences noted in school satisfaction in the current study could be an effect of the difference in the length of the typical school day. French school students have the longest working week in Europe, attending school between 26 and 30 hours per week, depending on on the year level (European Commisson, 2016). A typical high-school day would start at 8 am and finish at 4 pm, with a lunch break of one and a half hours. Although France also has the greatest number of school holidays during the school year, the benefit of longer school days has been the subject of debate in the relevant literature. (Berzin & Carpentier, 2002; Delvolvé, Trézeguet, & Thon, 1992; Potdevin, Labrousse, Masson, Vors, & Joing, 2015; Testu, 1994; Testu, 2002). Long days have been found to increase student fatigue (Potdevin et al., 2015; Touitou & Begue, 2010). In addition, the French education system does not reserve the afternoon hours for lighter classes, to account for possible student fatigue. It is possible to have a mathematics class at 3 pm on Friday. Potdevin et al. (2015) conducted a trial in one high-school in France, which modelled the Anglo-Saxon schedule of core classes in the morning and sports as well as creative lessons in the afternoon. Results showed that students reported higher scores on measure of sense of achievement and concentration. Additionally, for girls, this school schedule was associated with higher levels of general self-reported well-being. The authors of this study hypothesised that this notable increase in general well-being may have been a product of the greater variety of physical activities on offer (i.e. fitness, step, and theatre-dance; Potdevin et al., 2015). However, it is difficult to ascertain the validity of this study as not follow up studies were completed after the one-year study was completed. In view of these research findings. Long and cognitively draining days might have contributed to the French students reporting lower satisfaction with school in the

current study. . In summary, it would appear that the focus on a wider range of subjects, shorter school days and scheduling lighter, more recreational subjects in the afternoon may foster a school environment that contributes to higher student SWB in Australia compared to the French context.

The second-best discriminator of Australians from the French was *Relaxing*. This result was interesting as Relaxing was only the fifth most notable contributor to Australian adolescents' coping in this study. This subscale categorised relaxing into four activities, listening to music, daydreaming about not having problems, riding on a bicycle, and eating food. Australian culture has been documented as "laid back" and "easy going" (Fisher & Sonn, 2002; Lentini, Halafoff, & Ogru, 2009; Moran, 2011; Murphy, 2000). These notable cultural characteristics may constitute a socio-cultural capital that contributes to the formation of individual beliefs about cultural identity (Caplan, 1964). As such, Australian students might have been more prone to using relaxing coping strategies because it reflected a core aspect of the Australian culture. The idea of taking time for yourself and relaxing is more culturally expected, and as such, more socially accepted. Inspections of the means showed that Australian students reported on average more frequent listening to music and eating to cope with stressful situations than cycling and daydreaming. However, their scores on these indicators were similar to those of French students, with the exception of higher scores noted on the daydreaming variable.. It was noted previously that the current French social environment may be focused on immediate issues and not promote escapism as much as the Australian culture. As such, the French social and economic climate may not encourage daydreaming, as a coping strategy when dealing with stressful situations, as reflected in the results of this study.

Ventilating feelings was the third most important discriminant variable for the Australian sample. However, somewhat paradoxically as noted in study 6, Ventilating feelings was the second weakest contributor to adolescent' coping in both countries. Although these low scores cross culturally may reflect that this is a coping strategy which is infrequently used (evidenced by report data in the results section), there was still a notable difference between samples, with Australian students endorsing ventilating feelings as a coping strategy more frequently than their French counterparts. Study 6 provided a potential explanation as to why these coping strategies might have been unpopular across the two samples.

Engaging in demanding activity also differentiated between the Australian students and their French counterparts. Engaging in demanding activity was the fourth most important contributor to Australian adolescent coping profile, whereas it was only the seventh contributor to the French model of coping. This subscale measured adolescents' participation in strenuous physical activities and school activities. As previously noted, an interest in Sport, via activity or spectatorship, is more culturally supported and endorsed in Australia as opposed to France. (Fisher & Sonn, 2002; Moran, 2011; Peeters, 2004). The cultural difference between France and Australia in the emphasis placed on sporting activities was evident in the development of the instrument used in the current study. In the first study, focus groups with Australian adolescents suggested amendments to the questionnaire to include and emphasise physical activity in order for it to be adequately represented in the SWB measure. Similarly to the current study, focus groups conducted in SA by Halliday et al. (2018) also found that students named sport and exercise as a facilitator to SWB while they identified the lack of physical activity as a barrier to SWB (Halliday et al., 2018). During the process of cultural adaptation of the instrument, the different items measuring physical activity were condensed into one item, "I exercise".

Although, the primary reason for this change was to address a concern regarding instrument length, it was also reflective of the lower consideration of sport in the French culture. The panel of French educational experts did not see the need for the inclusion of several items measuring physical activity.

Physical activity and participation in extra-curricular activities were associated with greater SWB in relevant research (Bailey, 2006; Eime, Young, Harvey, Charity, & Payne, 2013; Fox, 1999, Hoyt, Chase-Lansdale, McDade, & Adam, 2012; Taylor, Gillies, & Ashman, 2009). An Australian study demonstrated that amongst three interventions, explanatory style, conflict resolution, and exercise, the latter was the most practical and time efficient in helping adolescents facing distress (Taylor et al., 2009). In addition, team sport was found to act as a buffer against anxiety (Eime et al., 2013). Such findings provided a positive outlook on the Australian way of using demanding activities to cope. However, it raised concerns about French culture surrounding the participation in these activities. Authors have documented the lack of extra-curricular activities offered in France (Coulangeon, 2018; Le Hebel, Montpied, & Fontanieu, 2014). A study showed that 37 percent of French adolescents never didn't participate in sporting activities sports outside of the compulsory two hours of school physical education (Deschamps, Salanave, Vernay, Guigon, & Castetbon, 2010). In addition, 14 percent of the relevant French sample disclosed that they were exempt declared being exempt from physical education at the time of the survey (Deschamps et al., 2010). Furthermore, participation in extra-curricular activities was found to be correlated with family socio-economic status, which may impact further on the lack of physical activity noted in French adolescents.. Considering the positive impact of these extra-curricular activities on adolescent development, research would

indicated that French schools should consider offering these activities and promote physical activities with adolescents.

Three additional variables discriminated between French and Australian students in the current study, Developing social support, Seeking professional support, and Developing self-reliance. Study 6 outlined a number of possible explanations of this research finding, and that all variables, with the exception of School Satisfaction on which the Australian sample scored more highly, were measures of coping. This finding was congruent with analysis results of the SEM, specifically that this style of coping was more indicative of the Australian sample.

The strongest discriminator evident in the French sample was Seeking diversion. This finding was unexpected as Seeking diversion was identified as the third most influential variable in the Australian model of adolescent coping. An examination of the shape of the relevant distributions of raw data shed light on this seemingly incongruent finding. . French students scored significantly higher on this subscale, however there was less variance in scores for the Australian sample. French culture may not endorse or offer the facilities and services to promote these types of activities as coping strategies, but the adolescents who do use these kinds of activities to cope may do so more frequently. It is suggested that this finding is the subject of further research, specifically because Seeking diversions is mainly seen as a maladaptive coping strategy.

Health Satisfaction was the second most important discriminator for the French sample. As explained in study 4, the items that were included in the measurement of Health Satisfaction differed across samples. Therefore, direct cross-cultural comparison on this construct is limited in the current study. However, both factors measured the health component. It was interesting to

note that the French version of the factor comprised of items pertaining to feeling well, feeling sick, and skipping school. Two of these items were descriptor of not feeling well[54]. With this in mind, it is likely that the French sample conceptualised "health" as absence or presence of disease or disorder. In contrast, in Australia, Health Satisfaction was described in a more proactive and positive fashion, specificallythe practice of exercise, feeling healthy, eating healthy food, and sleeping well.. These divergent views on health are likely to represent cultural differences. Firstly, these notable differences may be reflective of cross- cultural semantic differences. In France, the word "health" is only used when referring to the health status, even when toasting, the French culture uses the word as if to promote healthy behaviours. In contrast, in English the word health has been used with variations of context "healthy eating", "healthy mind", "healthy body", and "healthy lifestyle". Common linguistic and semantic usage of the term "health" in a variety of contexts could shed light on this finding in the current research, and as such it could potentially explain domain coverage of the Australian factor. Secondly, the Australian healthcare system takes a more holistic view of health than the French system, including a number of different health disciplines as part of standardised care. For examplepsychology, dietetics and chiropractic services are not covered by the public health system in France, , confining the reimbursement scheme to strictly medical professions. Thirdly, social media was seen as more central to Peer satisfaction in the Australian sample in comparison to the French sample, as indicated by the weight given to the use of social media item in both factor solutions. It is likely that social media depicts less of a traditional model of illness and promotes a holistic approach to health behaviours. As social media use was endorsed more by the Australian sample, this could also influence Australian adolescents'

[54] As noted in study 3, skipping school could be related to getting sick as a moderate correlation was observed between the two variables.

conceptualization of health. However, French students scored higher on health in the current study. Although Australians may have greater awareness of health-related behaviours, the French sample may have internalised these health-related matters and have adopted health related behaviours as part of their everyday life. . This is consistent with previous research which found that that that French youth reported relatively high levels of satisfaction with their health (Godeau, 2010).

The third variable that discriminated most the French students from their Australians homologues was Self-Appraisal. As previously discussed, the French version of the Self-Appraisal subscale included positive emotions items which reflected the femininity of the French culture, as opposed to masculinity, in accordance with Hofstede's model (1980) of cultural variance. (Gaffney, 2004). A potential explanation to be given for the Australians scoring lower than the French on Self-Appraisal could be found in the cultural tall poppy syndrome. Although the term tall poppy is not exclusively used by Australians, it has been noted in the relevant literature to be a common part of the Australian cultural lexicon (Peeters, 2004). Tall Poppy syndrome is a keyword in Australian culture, and as such possesses an important social, ideological, or economical symbolic of an ideal to aspire to a given specific society (Peeters, 2004). Relevant research has suggested that egalitarian values are highly valued in Australian culture (Feather, 1989; Peeters, 2004a, 2004b). Tall poppies can be defined as high achievers that distinguish themselves from the rest of the individuals for their achievements, wealth, or status, atracting jealousy and hostility because of these achievements(Feather, 1989; Peeters, 2004a, 2004b). Cultural dislike of "tall poppies" was exemplified by a statement made by the Premier of New South Wales in 1931, Jack Lang, who described his political policies as "cutting the heads of the tall poppies" in order to promote an more egalitarian society. Mackey posited that it was

not individuals that were successful who were the target of hostility, but but individuals that acted “tall” about their success. This aspect of Australian culture inspired a research area within the discipline of Social Psychology (Feather, 1989, 1993, 1994; Paccagnella & Grove, 2001), and a Tall Poppy Scale was devised by Feather in 1989. Seminal research from Feather (1989) showed among three samples of high-schoolers, university students, and the general population that individuals were pleased to see high achievers fail and that they held more negative views of these high achievers. This attitude towards successful individuals has been reported to create tension between the Australian value of achievement and the culture of equality and mateship (Feather, 1989). This paradox was also reported in the business world, where Australian leadership and its characteristics were different from American and European models (Meng, Ashkanasy, & Hartel, 2003). As such, it is possible that when Australian students were asked to rate themselves on the cognitive self-evaluation items, they might have conformed the cultural norm of not wanting to stand out. Therefore, creating lower scores for Australian students. Nonetheless, the scores of both samples were higher than the midpoint of the Likert-type response scale indicating positive self-evaluation.

Investing in close friends and Peer Satisfaction were also significant discriminators for the French sample. On both indicators, French students scored significantly higher than the Australians. In study 6, Developing social support was found to be the second most reliable indicator of coping for the French and Australian samples, and Australians scored higher on this measure. However, it would appear that when social support is related to seeking support from friends , French students may be more inclined to further these relationships. Results in study 4 showed that French students engaged in more social activities with their peers. In a similar manner, the item pertaining to exercise loaded onto the Peer Satisfaction factor, which might

have been an indicator of social-cultural influence in the practice of physical activities. In a study conducted by Hofstede (1980), France scored 19 points (out of 100) lower than Australia on Individualism. Possibly, this discrepancy could have been reflected in the social ties that individuals form in the current sample.

Seeking spirituality was also a discriminator for the French sample, and although means of both samples were below the mid-point of the scale, French students scored significantly higher on this coping strategy. This finding is incongruous in relation to the role of organised religion in French culture, because France is very strict about secularism and its application in public space. An example of France's attempt to move away from any type of secular influence in the school system schools is the recent public debate about whether school holidays should be renamed to reflect less secular themes. For example, teachers are encouraged to refer to Christmas and Easter holidays as Winter holiday and Spring holiday, respectively. This trend towards excluding religiosity from schools was also evident in the current study, as some school principals did not want their students to fill the A-COPE because of the items pertaining to spirituality. Historically, since the Revolution, France has been firm on keeping religion as a personal matter. This has become more evident in the aftermath ofthe recent terrorist attacks. As a consequence, statistics relating to the naturereligious beliefs in France are difficult to ascertain, as as questions regarding religious beliefs may not be addressed in the general census by the French national institute of statistics and traditional survey methods (El Karoui, 2016). In contrast, Australians talk more openly about their beliefs with census data from 2016 showing that only 30 percent of Australians reported not having a religion (ABS, 2016). As such, the findings of the current study, specifically that some of the French sample turned towards religious institutions in time of stress remains unclear. Avoiding problems and Negative

Emotions were the two remaining discriminators on the French side of the function. The French obtained significantly higher scores on Avoiding problems, while Australians reported significantly higher scores on Negative Emotions. As stated in study 6, Avoiding problems was infrequently used by adolescents in both samples, and "telling yourself the problem is not important" was the item that received the highest endorsement. Both groups of adolescents responded *never* or *hardly ever* to the items referring to substance use. Although trends showed that substance use is decreasing, it is possible that some social desirability bias as well as potential fear of disclosing may have impacted the results. Students were at school during the survey completion and they may have feared that their anonymity may not be total if they disclosed engaging in these behaviours. In order to clarify this finding, it is suggested that future research utilises focus groups in which adolescent participants feel more comfortable to disclose substance use anonymously

Negative Emotions were reported by both samples frequently, which is consistent with previous research stating that during adolescence is a vulnerable period of development, in which individuals are more likely to experience negative emotions on a regular basis (Bayer et al., 2018; Gregory et al., 2018; Patton et al., 2014). The physical and psychosocial changes encountered during this period might trigger the experience of heightened levels of negative affect. For instance, results from study 6 showed that French students associated their body image with Negative Emotions. Furthermore, Negative Emotions was the most reliable indicator of SWB, which testified of the importance of this measure (study 5). These results were consistent with the vast bulk of developmental literature suggesting there is a genuine need to investigate the area further. The rate at which adolescents cross culturally experience mental health issues such as EDO's, depression, anxiety etc. appears to be stable, suggesting that this is

an important area of focus for future research. Worries, Solving family problems, Family Satisfaction, Exposure to Bullying, and Being humorous did not contribute significantly towards the discrimination of Australia and France. However, the other indicators showed significant differences between the two samples, which suggest that they may be amenable to change and worthy of further investigation. In conclusion, the findings from the current study suggest that Australian and French students may differ significantly on measures of SWB and coping making this a vital area for future research.

Chapter 9

Concluding chapter

The current dissertation investigated the influence of culture on adolescent development using a theoretical framework consistent wit Bronfenbrenner's Ecological Systems Theory (1979). This theory posits that different layers of the socio-cultural environment impact on individual development. These layers are made up of the microsystem (family, friends), the mesosystem (interaction of the agents present in the microsystem), the exosystem (parents' work, neighbourhood), the macrosystem (ideologies and values of the culture), and the chronosystem (personal and societal transition in time). These systems influence each other, and to understand the development of individuals, an examination of the whole framework was necessary.

Chapter one provided a broad theoretical overview of adolescent psychosocial development. During adolescence, individuals experience changes, some of which on a cognitive (Piaget, 1959) and social (Erikson, 1963) level. Although historically, the study of the cognitive and social development was conducted through a universal approach to human development, cross-cultural investigations highlighted the influence of culture on these developmental milestones (Greenfield, Keller, Fuligni, & Maynard, 2003). Cognitive development, operationalised in the relevant research as knowledge acquisition , was shown to differ across culture (Greenfield et al., 2003). In Western culture, scientific reasoning is highly valued (Piaget, 1959), while in a non-Western culture like African culture, social skills are more desirable (Dasen, 1984). The literature also suggests that the development of attachment is also culturally embedded.. It is socially expected of a child in Western culture to be able to be left alone, whereas in Eastern culture, constant contact is culturally enforced. Although this study acknowledged that some aspects of development were inherently universal (e.g. puberty,

involvement in romantic relationships), it was of interest to investigate cross-cultural differences in adolescent development. Most cross-cultural research to date has focused onthe dichotomy between Western and Eastern cultures, sometimes referred to as individualist and collectivist, as well as independent and interdependent pathways (Brett & Okumura 1998; Earley 1989, 1994; Hui, 1989; Kwan, Bond, & Singelis, 1997; Oishi, 2000; Oyserman, Coon, & Kemmelmeier, 2002). One of the main limitations of these studies is the comparison of cultural differences without taking differences in setting and environment into account.. Such comparisons leading to conclusions that cultural differences were due to opposing ideologies were questionable due to the lack of ecological validity. To avoid such a fallacy and to shed light on the richness of culture, the present study compared the Western cultures of two countries, Australia and France. These two ecological environments share similar values, wealth, political system, and social orientation. Consequently, comparing a similar cultural context facilitated the ability to highlight the subtleties of each culture.

In the current study, the process by which culture may affect knowledge acquisition was reflected in the difference in the number of subjects offered in schools between the two countries. While Australia offers a wide range of disciplines in its curriculum, France's subject choice is limited to core academic skills. This difference is suggested to have an impact on adolescent development. In accordance with Erikson 's (1963) crisis of Industry *versus* Inferiority[55], adolescents are likely to compare themselves with their peers, as such an environment that assesses individuals' skills on an array of domains could be perceived as more inclusive. Additionally, the Identity *versus* Role confusion crisis, suggested by Erikson to be

[55] Technically, this crisis precedes adolescence, but research showed that the different crises get re-assess across the life span.

characteristic of adolescence, is mediated by an environment that promotes the acquisition of a diverse skill set including both problem-solving and personal resources. During this phase of identity formation (Erikson, 1963; Marcia, 1966), adolescents explored different facets of their identity such as musical taste, political opinions, and religious beliefs. In a similar manner, being able to "try out" different subjects and explore different avenues that might shape and orientate study choice is likely to be advantageous. . These findings aligned with Coté's (1996) theory of identity construction, in which social structures of the environment influence personal development

The current study focused specifically on adolescence, which is an important period of development due to the multiple changes encountered by young individuals. Consequently, adolescence is also a period in the lifespan during which mental health issues may first emerge. (Bayer et al., 2018; Goldstein & Brooks, 2005; Gregory et al., 2018; Patton et al., 2014). Fourteen percent of individuals between the ages of four and 17 reported as having a mental disorder in the last 12 months (Australian Institute of Health and Welfare - AIHW, 2017). Suicide was also the leading cause of death for Australian adolescents (AIHW, 2016). Concerns have also been raised regarding French adolescents' mental health with 40 percent reporting feeling "blue" and sad, and 30 percent reporting having lost confidence in their life (UNICEF, 2014). In 2014, suicide was the second leading cause of adolescents' death in France (Baudelot & Establet, 2016). The experience of negative emotions during adolescence was found to be a potential barrier to the development of positive mental health in adulthood (Zadow, Houghton, Hunter, Rosenberg, & Wood, 2017). Often, the term adolescent adjustment phase is used to describe this period (Darling, Caldwell, & Smith, 2005; Gould, Hussong, & Keeley, 2008; Laible, Carlo, & Raffaelli, 2000; Patterson & McCubbin, 1987). Despite these statistical and

anecdotal findings, , the research on adolescent positive adjustment has lagged behind, mainly because the lack of reported symptoms was perceived as positive mental health in the past (Bryden, Field, & Francis, 2015; Frydenberg, 2008; Gullone & Cummins, 1999; Hoyt et al., 2012; Proctor et al., 2009; Sawyer, Kosky, Graetz, Arney, & Kubrick, 2000; Tian, Zhang, & Huebner, 2015).

This study focused on two aspects of adolescent development, Subjective Well-Being (SWB) and coping. Although both variables are important indicators of adolescent adjustment, a review of the literature indicated that the current understanding of adolescents' SWB and coping was incomplete (Frydenberg & Lewis, 1994; Proctor, Linley & Maltby, 2009; Rehulkova, Blatny, & Osecka, 1995; Tian et al, 2015; Wilkinson, Walford, & Espnes, 2000). Further examination of the literature revealed a lack of reliable instruments, which is likely to have hindered a proper investigation of adolescent SWB (Dew & Huebner, 1993; Espstein & McPartland, 1976; Gilligan & Huebner, 2002; Huebner, 1995; Konu & Lintonen 2006; Lewinsohn et al., 1991; Park et al., 2004; Seligson et al., 2003; Snyder & Lopez, 2007). The current research contributed to the literature by designing a measure of adolescent SWB and providing a model of adolescent SWB and coping.

In order to create an instrument that measured SWB in adolescents across cultures, a rigorous methodology was employed to create a valid and reliable instrument to measure adolescent SWB across cultures. . The most well evidence model of SWB from relevant literature was utilised as the guiding theoretical approach to design this instrument. This model of SWB comprised two components, affective and cognitive (Andrews & Withey, 1976; Argyle, 1987; Bradburn, 1969; Diener, 1984; Diener & Larsen, 1984). The affective component included

the experience of positive and negative emotions (Diener, 1984). The cognitive component encompassed a number of life domains , on which life satisfaction was assessed (Diener, 1984).

The creation of this instrument presented four main challenges, (i) it had to possess satisfactory domain coverage, (ii) it needed to be written in an age-appropriate language, (iii), and (iv) it needed to be cross-culturally valid. In order to attain domain coverage, a mixed-method was used that followed the recommendation of Classical Test Theory (CTT; Nunnally & Bernstein, 1994) including qualitative approaches during instrument development[56]. An initial review of the literature was conducted to inform the potential life domains to include in the instrument. Atwo-phase pilot study was conducted, during which two samples of Australian adolescents answered open-ended questions pertaining to the domains contributing to their well-being. This approach was recommended by experts in the field as it provided first-hand information from the target population (Aldridge & McChesney, 2018; Holiday, Kern, Garett, & Turnbull, 2018; Pommier et al., 2002). Adolescent pilot study participants also assessed the readability and usability of the items. According to the Cognitive Stage Theory (Piaget, 1959), students at different ages would not be able to understand the same items therefore it was important to collect feedback on item readability and usability. However, the results of the pilot study demonstrated that the use of simple language was sufficient to ensure item usability by different age cohorts of students. A panel of well-being experts reviewed the instrument and generated additional items. The contribution of experts in the field was recognised as an efficient way of achieving content validity (Benson & Clark, 1982; Berk, 1990; Grant & Devis, 1997; Radhakrishna, 2007). From this first part (a) of study 1, a 54-item instrument mapping to ten domains; Positive Emotions, Negative Emotions, Friendship Satisfaction, Family Satisfaction,

[56] As previously noted, the full report of these focus groups is beyond the scope of this dissertation.

School Satisfaction, Exposure to Bullying, Physical Health, Body Image, Use of Technology, and Worries was constructed.

Part b and c of study 1 evaluated the construct validity of the instrument. Exploratory Factor Analyses (EFA) were used to test this hypothesis. Both studies were conducted in Australia on large samples of adolescents sourced from the same high-school. Results showed that the instrument, the Comprehensive Measure of Adolescent Well-Being (CAMWB) mapped to an eight-factor structure, comprised of Body Image, Bullying, Positive Emotions, Social Connectedness, Negative Emotions, Worries, Self-Appraisal, and Activities. Both results supported presented limitation as to the three most significant contributors of adolescent SWB, friends, family, and school environment, did not emerge as subscales in the instrument. This outcome indicated that some modifications were needed in order to appropriately cover these three life domains.

These changes were made during the process of rendering the instrument cross-culturally. Hofstede (1984) and Triandis (1994) emphasised the pervasive effect of language and advised cross-cultural researchers to have instruments translated and back-translated to ensure equivalence of instrument forms. Possible issues with language and translation equivalence were addressed using Brislin's (1970) back translation model in study 2. Translation of the instrument revealed some issues with item equivalence. A panel of educational experts generated additional items to address limitations found in study 1. Study 2 resulted in the creation of a 46-item instrument available in English and in French mapping nine domains of adolescents' SWB; Positive Emotions, Negative Emotions, Self-Appraisal, Peer Satisfaction, Family Satisfaction, School Satisfaction, Exposure to Bullying, Physical Health, and Worries.

Study 3 and study 4 investigated the construct validity of the revised instrument, hypothesising that EFA would show a nine-factor structure. Study 3 used a sample of French adolescents, while study 4 used a sample of Australian adolescents. Both studies produced an eight-factor structure, Self-Appraisal, School Satisfaction, Peer satisfaction, Exposure to Bullying, Negative Emotions, Family Satisfaction, Health Dissatisfaction/ Health Satisfaction[57], and Worries. The first hypothesis was only partially supported as a factor measuring Positive Emotions was not produced in any samples. This questioned whether there was an insufficient number of items measuring Positive Emotions to allow the emergence of such a factor (Kern, Waters, Adler, & White, 2015), or whether the established model of SWB, which was based on an adult population, did not adequately fit adolescents. In both samples, the items measuring Positive Emotions meaningfully merged with factors of Self-Appraisal, Family Satisfaction, Negative Emotions, and School Satisfaction. For the French sample, the loadings of the Positive Emotions items indicated that affect was an important component of self-evaluation. This finding is likely to be reflective the emotional valence of the French culture. As previously stated, French culture was more feminine and as such emotions might play a more important role in self-assessment (refer to study 4 and 7).

The factor of physical health differed the most between the samples, only one item was common between the Australian and the French solution “I feel healthy”. This result suggested a different conceptual representation of health between the two samples. It was noteworthy that the Australian factor possessed a more satisfactory structure, as it included all but one item intended to measure health, however their scores on health satisfaction were lower than the French

[57] In the French solution, the factor measured health dissatisfaction, while in the Australian solution the factor measured health satisfaction.

adolescents. As noted in study 7, the Australian context might have a more holistic approach to health and promote more health-related behaviours, whereas French students appeared to endorse the disease model. However, there appeared to be a discrepancy between the message divulgated at a societal level and perceived personal health. French adolescents reported significantly higher health satisfaction than Australians.

Other differences were noted in the composition of the subscales, indicative of cultural differences. For example, in the Australian solution, two items pertaining to body shape, intended to measure Self-Appraisal, loaded onto Worries. This finding aligned with existing literature pointing out body image as one of the most worrying issues for Australian adolescents (Mission Australia, 2017). The measure of School satisfaction showed the importance of student-teacher relationships as in both samples, as the item pertaining to these relationships had the highest loadings. However, the Australian environment appeared to be more propitious for the development of positive relationships. An extended review of the difference in school settings was presented in study 7.

To confirm the factor structure, two Confirmatory Factor Analyses (CFA) were conducted in study 5. The significant difference chi-square demonstrated that the two models of adolescents' SWB differed. In the French model, the strongest path weights to SWB were displayed for Negative Emotions and Worries, suggesting the importance of these domains in the appraisal of SWB for this sample. This finding further supported the emotionality of the French sample (Gaffney, 2004; Hofstede, 1980). Peer Satisfaction, Family Satisfaction, Negative Emotions, Worries, and Self-Appraisal were also correlated in the current study. These results suggested that social input from peers and family would influence individual self-appraisal. Friends and family are part of the microsystem in Bronfenbrenner's model (1979), andare

theorised to have a direct impact. Additionally, the experience of negative emotions and worries were also proposed to affect self-appraisal.

In contrast, in the Australian model, the strongest path weights were for Self-Appraisal and School Satisfaction. These findings indicate the importance of a positive sense of self and satisfaction with school in overall SWB, in accordance with findings from previous research (Cummins & Lau, 2005; Diener & Diener, 1995; Ferguson, Kasser, & Jahng, 2010; Huebner, 1994; Huebner, Laughlin, Ash, & Gilam, 1998; Kim, Schimmack, Cheng, Webster, & Spectre, 2015; Moos, & Moos, 1994). The current study found additional correlations betweenNegative Emotions, Worries, and Peer Satisfaction. These results indicated that Australian adolescents might experience negative emotions and worries relating to their peers. The sample of adolescent used in the current study came from a selective high-school, in which students were competitive with one another. Potentially, this observation could have been reflected in the model. Previous studies have reported that peers can generate negative feelings and worries among adolescents (McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Norona, Salvatore, Welsh, & Darling, 2014; Rubin, Bukowski, Parker, & Bowker, 2008; Washburn-Ormachea, Hillman, & Sawilosky, 2004). The first five studies of this research successfully designed a multidimensional instrument[58] that measured adolescent SWB across two cultures, Australia's and France's one.

The second part of this dissertation addressed the profile of adolescent coping in Australia and France, using the A-COPE (study 6). Two CFA were used to assess the models of adolescent coping and the significant difference chi-square demonstrated that these two models differed.

[58] The psychometrics of the CAMWB were established in study 5.

Comparison of the Australian and French model of coping showed that the two most reliable measures of coping were the same across samples, Developing self-reliance and optimism and Developing social support. However, cultural factors might have played a role in the development of these strategies. It was suggested that Developing self-reliance and optimism in France was the result of a perceived harsh social reality present in the environment. In contrast, for the Australian sample, the development of this coping strategy might have been the result of a positive living environment combined with a culture of entrepreneurship. Regarding Developing social support, both cultures value friendships, and parents of adolescents coming from these countries would allow for their offsprings to have free time to foster these supportive relationships. In both samples, Ventilating feelings was the second least reliable measure of adolescent coping. It was proposed that potentially some social desirability could have influenced this result. Avoiding problems was the lowest indicator of coping for Australians. This finding replicated previous research that stated that Australian adolescents' consumption of alcohol, tobacco, and drugs were decreasing. Seeking professional help was the weakest indicator for the French sample, this result aligned with the cultural idea of consulting psychologist and the lack of available services within the school environment. According to Bronfenbrenner, the macrosystem and the chronosystem, which entail the cultural, political climate, and the societal time period of an environment, indirectly affect an individual. However, these two systems reinforce what is considered acceptable and "fitting". The development of these coping strategies was seen as a result of the interaction between individual and environment (see full discussion in study 6).

In study 7, the entire model of adolescent coping and SWB was tested. This study also sought to discriminate between French adolescents and Australians based on A-COPE and

CAMWB results. The major finding of this study was that the use of particular coping strategies was more common among Australians, while the French reported a higher sense of SWB. Interestingly, School Satisfaction was the strongest discriminant variable between the two countries. Satisfaction among students was higher in the Australian schooling system. Study 7 highlighted several points of difference that could assist in explaining this finding. In Bronfenbrenner's terms (1979) school is part of the microsystem and has a direct effect on individual development. It is also an environment in which interventions can be implemented to foster positive development. This supports the notion that researchers should continue their effort into developing positive institutions (Aldridge & McChesney, 2018; Gregory et al., 2018; Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Australian adolescents appeared to have developed mostly adaptive coping strategies, Relaxing, Engaging in demanding activity, Developing social support, Seeking professional support, and Developing self-reliance and optimism. An analysis of Australian culture demonstrated that the environment was favourable to the development of these strategies. Australia is claimed to be a "laid back" culture (Fisher & Sonn, 2002; Lentini, Halafoff, & Ogru, 2009; Moran, 2011; Murphy, 2000), which was orientated towards sport, and in which "mateship" was valued. Additionally, the Australian health care system encourages individuals to consult professionals for mental health matters, which may be beneficial for young individuals that are in development. For instance, services like Headspace is an example of an initiative towards positive mental health in Australia for young people. Furthermore, the Australian culture promotes self-reliance with embedded values of entrepreneurship and autonomy as well as vehiculating optimism through a positive lifestyle.

Limitations and Implications

The current study has a number of notable strengths including methodological rigor, theoretical frameworks based on relevant literature, use of cross-cultural samples. However, there are also a number of evident limitations, which may be addressed by future research in the area. An endemic problem for educational research is access to samples. It takes an inordinate amount of time to acquire the necessary permissions to collect data in schools. In addition, this study had the additional difficulty of sampling in two countries with different school calendars. As such, sampling difficulties were encountered. With the luxury of more time, this research would pursue its investigation sampling several more schools allowing longer sampling periods, facilitating school involvement.

This research demonstrated that some aspects of adolescent development, such as school and health satisfaction varied across cultures. This finding suggested that it would be possible to develop sample-specific interventions targeting the potential issues identified in a setting to remediate SWB differences. For example, an intervention using a positive education framework in French schools might inform of its impact on students' school satisfaction. Likewise, modelling the Australian example, it is suggested that additional research investigates the influence of a social and emotional skills intervention, or greater availability of school counsellors on SWB, in order to observe whether an increase of school satisfaction is noted. In accordance with the relevant literature and findings from the current study, future research needs to focus on youth engagement in sports in French schools and/or public associations. For instance, soccer is a popular sport in France and the team cohesion involved in this activity fits well with the social inclination of the French culture (documented in this thesis). Therefore, the author suggests that this would add to the body of relevant research to investigate the

relationship between playing soccer and student SWB. In the Australian context, additional research needs to be conducted to develop an intervention targeting health satisfaction and self-esteem. An investigation into the factors that influence perceived health would shed additional light on what appeals to adolescents. This type of research could do inform future public health campaigns targeting adolescents. In addition, focus groups could be utilised investigate the potential reasons for the negative emotions in adolescence. Although the findings of this thesis only confirm existing literature, the reason behind this increased negative affect remains mainly unexplained, as such this calls for future investigation.

Although the current investigation covered a vast array of life domains of adolescents, some aspects were not included due to the time restriction inherent to a P.hD. program. For instance, the development of sexual identity and the beginning of sexuality was not covered by the scope of the current study, yet it is acknowledged that this is a crucial aspect of adolescence. As a consequence, an investigation looking into sexual identity should follow the present research in order to assess how sexual construction affects SWB and coping.

The current study investigated the influence of culture on adolescent development. The research findings of the current study highlighted the importance of the environment on the construction of the individual. Considering the implications of the research findings and the time constraints of the current research, it is important to further investigate the factors influencing adolescent SWB and the development of coping strategies. This research sheds light on the importance of the environment and in a broader sense of culture in the construction of ~~the~~ individual identity. In addition, the current study highlights the importance and value of cross cultural comparisons, as this provides information on on the cultural norms and attitudes of settings and to investigate their influence on the population.

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Appendix A

Pilot study questionnaire – Phase 1

Pilot study

This research is designed to better understand what contributes to adolescents well-being. There is no right and wrong answer. Answer the questions the way that feels most true to you. If there is an item that you do not understand feel free to ask the person that gave you the test about it. These answers will remain confidential.

Biographical information

Age	
Gender	
Country of birth	Australia ☐ Other ☐ Please specify
Nationality	Australia ☐ Other ☐ If dual nationalities, please specify which one do you identify with most:

Lifestyle

Do you have accounts of the following social media? (Circle all that apply):

Facebook
Snapchat
Twitter
Pinterest
Instagram

Do you participate in any sports? Yes No

Play an instrument? Yes No

Are you part of any clubs or groups? Yes No

Please specify:

Do you eat fruits and vegetables? (Circle Below):

Most of the time – Often – Rarely - Almost never

Relationships

How would you rate your relationship with your mother? (Circle Below):

1 2 3 4

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

How would you rate your relationship with your father? (Circle Below):

1 2 3 4

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

Do you have siblings: Yes No

If Yes, how would you rate your relationship with each of them from

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

1. 4.
2. 5.
3. 6.

How many peers do you consider friend? (Circle Below):

1 2-3 4-10 more than 10

Do you have a (Tick if applicable):

A girlfriend ☐ A boyfriend ☐

How much time, on average, do you spend with your family? (write an approximate for each day below, for example 2-3hours):

School environment

How would you define bullying?

Have you ever:

Been called names	☐	Been physically assaulted	☐
Laughed at	☐	Felt intentionally ignored by peers	☐
Excluded from a group of friends	☐	Other	☐

Please specify:

Have you ever:

Called someone names	☐	Physically assaulted someone	☐
Laughed out someone	☐	Intentionally ignored someone	☐
Exclude someone	☐	Other	☐

Please specify:

You

Please name up to five important things that contribute to your well-being/ happiness (e.g. people, places, activity, belonging):

-
-
-
-
-

Please name up to five things that negatively impact on your well-being/ happiness:

-
-
-
-
-

Would you say you	Almost Never	Rarely	Often	Most of the time
Are happy	1	2	3	4
Feel tired	1	2	3	4
Feel like crying	1	2	3	4
Feel understood by your friends	1	2	3	4
Feel understood by adults	1	2	3	4
Respect yourself	1	2	3	4
Have a positive attitude towards life	1	2	3	4
Believe I have a number of qualities	1	2	3	4

Other general comments on this questionnaire:

Thank you for your participation

Appendix B

Pilot study questionnaire – Phase 2

Questionnaire

This research is designed to better understand what contributes to adolescents well-being. There is no right and wrong answer. Answer the questions the way that feels most true to you. If there is an item that you do not understand feel free to ask the person that gave you the test about it. These answers will remain confidential.

Biographical information

Age	
Gender	
Country of birth	Australia ☐ Other ☐ Please specify
Nationality	Australia ☐ Other ☐ Please specify
Religion (if any)	

Lifestyle

Do you have accounts of the following social media? (Tick all that apply):

Facebook ☐ Snapchat ☐
Instagram ☐ Twitter ☐

Do you participate in any team sports? Yes No
Do you enjoy it? Yes No

Play an instrument? Yes No
Do you enjoy it? Yes No

Are you part of any clubs or groups? Yes No
Do you enjoy it? Yes No

Do you eat fruits and vegetables? (Circle below):

Everyday- Three times a week- Twice a week- Once a week- Never

Do you sleep well (Circle below):

Most of the time – Often – Rarely – Almost Never

Do you partake in social outings (Circle below):

Most of the time – Often – Rarely – Almost Never

Do you exercise (Circle below):

Most of the time – Often – Rarely – Almost Never

Relationships

How would you rate your relationship with your mother? (Circle Below):

1 2 3 4

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

How would you rate your relationship with your father? (Circle Below):

1 2 3 4

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

Do you have siblings: Yes No

If Yes, how would you rate your relationship with each of them from
Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

1. 4.
2. 5.
3. 6.

How many peers do you consider friend? (Circle Below):

1 2-3 4-10 more than 1

Do you have a (Tick if applicable):

A girlfriend ☐ A boyfriend ☐

How much time, on average, do you spend with your family? (write an approximate for each day below eg 2-3hours):

School environment

Have you ever:

Been called names ☐ Been physically assaulted ☐
Laughed at ☐ Felt intentionally ignored by peers ☐
Excluded from a group of friends ☐ Other ☐

Please specify:

Have you ever:

Called someone names ☐ Physically assaulted someone ☐
Laughed out someone ☐ Intentionally ignored someone ☐
Exclude someone ☐ Other ☐

Please specify:

How would you rate your relationship with your teachers (Circle below):

1 2 3 4

Very Dissatisfied - Dissatisfied – Satisfied - Very Satisfied

I have noticed racism in my school (Circle Below):

Yes No

You

Have you ever felt different from others because of the way you looked (Circle below)

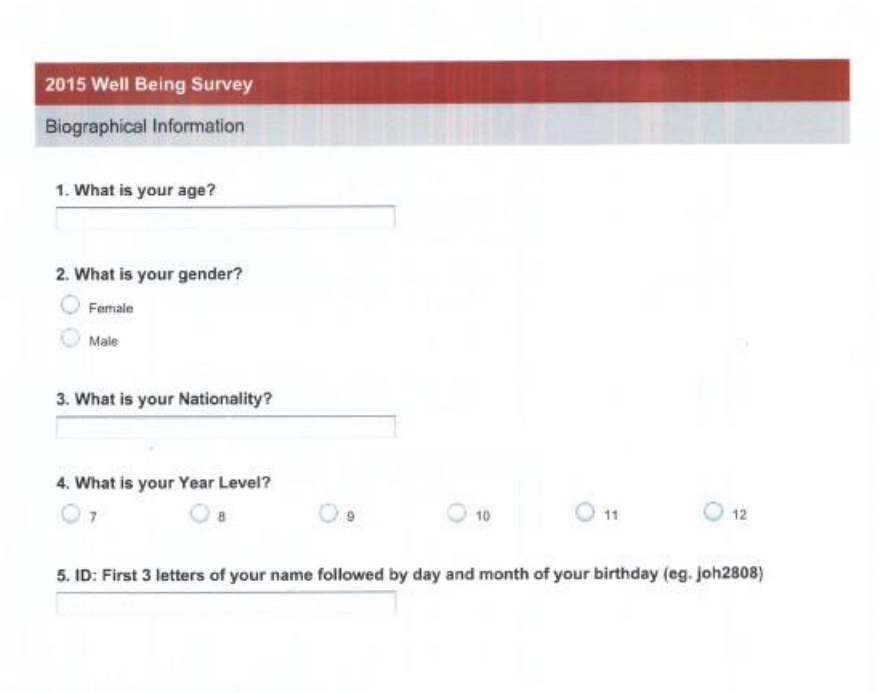
Yes No

Circle the answer that feels the most applicable to you

Would you say you	Almost Never	Rarely	Often	Most of the time
Are happy	1	2	3	4
Feel tired	1	2	3	4
Feel like crying	1	2	3	4
Feel understood by your friends	1	2	3	4
Feel understood by adults	1	2	3	4
Respect yourself	1	2	3	4
Have a positive attitude towards life	1	2	3	4
Believe I have a number of qualities	1	2	3	4
Worry about my weight	1	2	3	4
Worry about money qualities	1	2	3	4
Worry about having a successful career	1	2	3	4
Are satisfied are you with your body	1	2	3	4
Are satisfied are you with your genera image	1	2	3	4

Appendix C

CAMWB – First version



2015 Well Being Survey

Biographical Information

1. What is your age?

2. What is your gender?

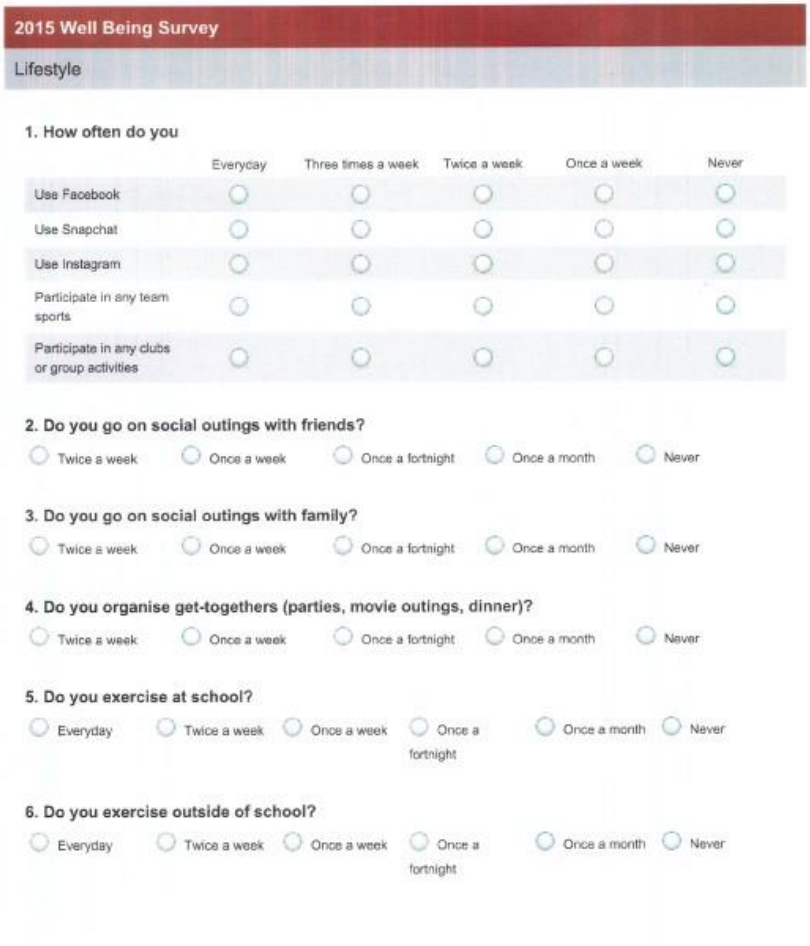
- Female
- Male

3. What is your Nationality?

4. What is your Year Level?

7 8 9 10 11 12

5. ID: First 3 letters of your name followed by day and month of your birthday (eg. joh2808)



2015 Well Being Survey

Lifestyle

1. How often do you

	Everyday	Three times a week	Twice a week	Once a week	Never
Use Facebook	○	○	○	○	○
Use Snapchat	○	○	○	○	○
Use Instagram	○	○	○	○	○
Participate in any team sports	○	○	○	○	○
Participate in any clubs or group activities	○	○	○	○	○

2. Do you go on social outings with friends?

○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never

3. Do you go on social outings with family?

○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never

4. Do you organise get-togethers (parties, movie outings, dinner)?

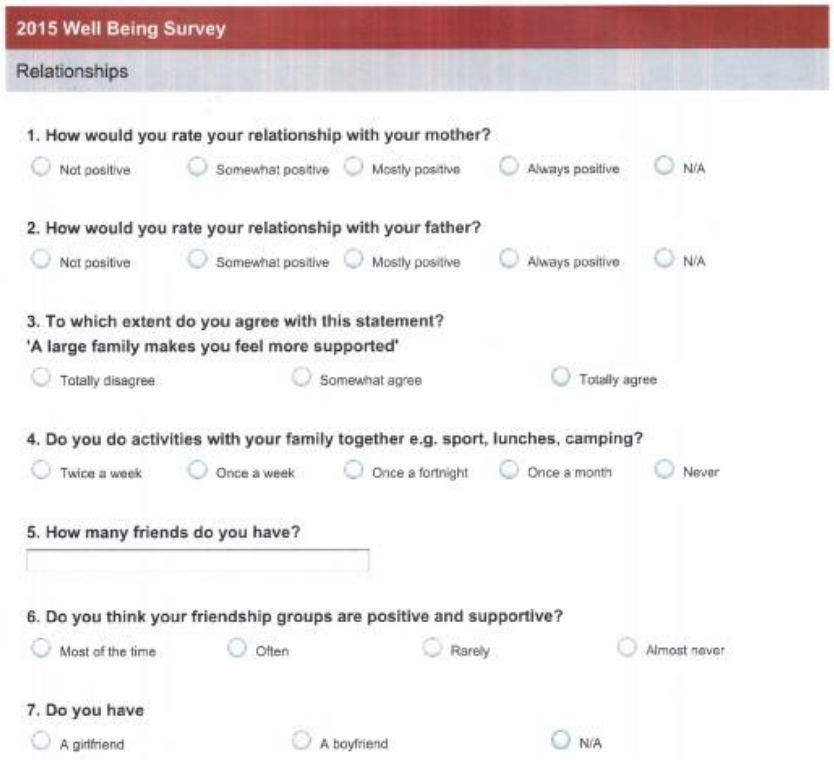
○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never

5. Do you exercise at school?

○ Everyday ○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never

6. Do you exercise outside of school?

○ Everyday ○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never



2015 Well Being Survey

Relationships

1. How would you rate your relationship with your mother?

○ Not positive ○ Somewhat positive ○ Mostly positive ○ Always positive ○ N/A

2. How would you rate your relationship with your father?

○ Not positive ○ Somewhat positive ○ Mostly positive ○ Always positive ○ N/A

3. To which extent do you agree with this statement?
'A large family makes you feel more supported'

○ Totally disagree ○ Somewhat agree ○ Totally agree

4. Do you do activities with your family together e.g. sport, lunches, camping?

○ Twice a week ○ Once a week ○ Once a fortnight ○ Once a month ○ Never

5. How many friends do you have?

6. Do you think your friendship groups are positive and supportive?

○ Most of the time ○ Often ○ Rarely ○ Almost never

7. Do you have

○ A girlfriend ○ A boyfriend ○ N/A

2015 Well Being Survey

School Environment

1. I like going to school because I get to see my friends

○ Most of the time ○ Often ○ Rarely ○ Almost never

2. I enjoy coming to school

○ Most of the time ○ Often ○ Rarely ○ Almost never

3. I feel safe at school

○ Most of the time ○ Often ○ Rarely ○ Almost never

4. I enjoy learning

○ Most of the time ○ Often ○ Rarely ○ Almost never

5. If I could I would skip school

○ Most of the time ○ Often ○ Rarely ○ Almost never

6. How satisfied are you with your school/work/life balance?

○ Not satisfied ○ Somewhat satisfied ○ Mostly satisfied ○ Very satisfied

7. How satisfied are you with your subject choices?

○ Not satisfied ○ Somewhat satisfied ○ Mostly satisfied ○ Very satisfied

8. I feel different because of

	Most of the time	Often	Rarely	Almost never
Skin colour	○	○	○	○
Accent	○	○	○	○
Eye shape	○	○	○	○
Name	○	○	○	○
Hair	○	○	○	○

9. How would you rate your relationship with your teachers?

○ Not positive ○ Somewhat positive ○ Mostly positive ○ Very positive

10. Select the answer that feels the most applicable to you. I feel:

	Most of the time	Often	Rarely	Almost never
Happy	○	○	○	○
Like crying	○	○	○	○
Understood by your friends	○	○	○	○
Satisfied with my body shape	○	○	○	○
Satisfied with my weight	○	○	○	○
Satisfied with my personality	○	○	○	○
I have a positive attitude towards life	○	○	○	○
I believe I have a number of positive qualities	○	○	○	○
I respect myself	○	○	○	○

11. Select the answer that feels the most applicable to you. I worry:

	Most of the time	Often	Rarely	Almost never
About my weight	○	○	○	○
About Money	○	○	○	○
About grades at school	○	○	○	○
About violence happening nowadays	○	○	○	○
About having a successful career	○	○	○	○
Others seeing me differently because of the way I look	○	○	○	○

12. How often do you feel like this in your daily school life:

	Most of the time	Often	Rarely	Almost never
Calm	○	○	○	○
Content	○	○	○	○
Compassion	○	○	○	○
Empathy	○	○	○	○
Fearful	○	○	○	○
Jealous	○	○	○	○
Worried	○	○	○	○
Angry	○	○	○	○

Appendix D

CAMWB (revised) – Australian version

Adolescent Well-BeingBond University

Faculty of Humanities and Social Science

Ph.D. Research Project

Project Title: Cross-cultural investigation of Adolescent Subjective Well-Being

Project Number: 0000015917

Researchers: Camille Rault

Supervisor: Dr. Mark Bah

Participant Information Statement

I am currently completing a PhD in Psychological Sciences at Bond University under the supervision of Assistant Professor, Dr Mark Bahr. This study is designed to examine the factors that play a role in adolescent wellbeing. In this study you will be asked to ll-out a questionnaire. It will take approximately 30 minutes to complete. The questionnaire is answered online and will be completed at your school. The questionnaire tells us about your life and your experiences as an adolescent and your lifestyle. Telling us about your experiences and lifestyle helps us understand the best things in your life and perhaps the worst as well. From better understanding of current adolescent experiences, we can develop strategies to work towards making school a better place for students.

The questionnaire isn't a test. There are no right or wrong answers, just answer what is most true to you. The more you can tell us the better we can understand what adolescents experience today. If any question makes you feel uncomfortable you don't have to answer it but we would appreciate it if you try to answer every question. Participation in this study is completely voluntary and you may withdraw at any time without penalty. This means if you start the survey and can stop in the middle if you decide to.

The information you provide will be anonymous. No one will know what you answered or who you are. So, none of your answers can be linked back to you personally. Instead, you will have a number rather than using your own name. When we look at the data and when we report the data we will be able to talk about what groups of people like you experience, but not you as an individual.

Data will be stored in a secured location at Bond University for a period of five years in accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

By clicking the continue button that follows, you are giving your consent to partake in this study.

Upon completion if you experience psychological distress, please contact Kids Helpline on this number 1800 55 1800 or talk to your school counsellor.

Best regards and Thank You

Assistant Professor, Mark Bahr Student Researcher, Camille Rault

Should you have any complaints concerning the manner in which this research is being conducted please make contact with Bond University Human Research Ethics Committee, c/o Bond University Office of Research Services. Bond University, Gold Coast, 4229

Tel: +61 7 5595 4194 Fax: +61 7 5595 1120 Email: buhrec@bond.edu.au

❍ **Continue**

Q Age

Q Gender

❍ Male (1)
❍ Female (2)
❍ Prefer not to say (3)

Q **For the following statements, please indicate how often you have experienced these in the last four weeks. There are no right or wrong answers.**

Q1 I worry about money

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q2 I worry about my grades

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q3 I worry about getting a job

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q4 I worry about violence happening nowadays

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q5 I use social media

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q6 I go on outings with friends

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q7 I organise get-togethers

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q8 I feel understood by my friends

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q9 I am part of a group of friends

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q10 I have witnessed students being laughed at or insulted by other students

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q11 I have witnessed students being excluded or ignored voluntarily by other students

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q12 I have witnessed students being victims of violence by other students

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q13 I feel understood by my teachers

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q14 I enjoy learning

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q15 I enjoy coming to school

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q16 I am satisfied with my subject choices

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q17 I have good relationship with my teachers

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q18 I receive the support that I need at school

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q19 I skip school

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q20 I feel safe at school

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q21 I get sick

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q22 I eat healthy food

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q23 I sleep well

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q24 I exercise

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q25 I feel healthy

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q26 I have a good relationship with my mother

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q27 I have a good relationship with my father

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q28 I have a good relationship with my siblings

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q29 I enjoy spending time with my family

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q30 I go on outings with my family

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q31 I am satisfied with my body shape

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q32 I worry about my weight

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q33 I am satisfied with my personality

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q34 I consider having a number of good qualities

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q35 I have a positive attitude towards life

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q36 I respect myself

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q37 I feel calm

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q38 I feel happy

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q39 I feel loved

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q40 I feel fearful

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q41 I feel jealous

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q42 I feel worried

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q43 I feel angry

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q44 I feel tired

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q45 I feel like crying

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Q46 I feel sad

- ❍ Never (1)
- ❍ Very Rarely (2)
- ❍ Rarely (3)
- ❍ Occasionally (4)
- ❍ Very Frequently (5)
- ❍ Always (6)

Appendix E

Study 3 Scoring (French sample)

Correlations between factors and total scores were meaningful and justified the computation of a unique single score for the CAMWB. Although the scale was by nature multidimensional and the information provided by each factor was of interest, for ease of interpretability, the instrument scores can also be summed into one score. Scoring of the subscales was done by summing the items. However, for ease of interpretation mean, subscales should be used instead of total scores. This substitution can be helpful when comparing scores between subscales given that the number of items per subscale was not equal, making a comparison of total scores impractical. Similarly, the CAMWB total score was calculated based on the addition of the subscales, and the mean CAMWB was calculated based on the addition of the subscales divided by eight. Table xx presents the scoring system of CAMWB.

Scoring system of CAMWB and subscales

Variables	Scoring
Self-Appraisal	(38 + 39 + 34 + 35 + 33 + 36) / 6
School Satisfaction	(17 + 16 + 13 + 14 + 15 + 18 + 29 + 37 + 20) / 9
Peer Satisfaction	(6 + 7 + 24 + 9 + 8 + 5) / 6
Exposure to Bullying	(10 + 11 + 12) / 3
Negative Emotions	(31 + 4 + 32 + 42 + 40 + 45 + 41 + 44) / 8
Family Satisfaction	(26 + 27 + 28 + 29 + 30) / 5
Health Dissatisfaction	(19 + 21 + 22) / 3
Worries	(1 + 2 + 3 + 41) / 4
CAMWB	(Self- Appraisal + School Satisfaction + Peer Satisfaction + (7 - Exposure to Bullying) + (7- Negative Emotions) + Family Satisfaction + (7- Health Dissatisfaction) + (7-Worries) /8

Appendix F

Study 4 scoring (Australian sample)

Correlations between factors and total scores were meaningful and justified the computation of a unique single score for the CAMWB. Although the scale is by nature multidimensional and the information provided by each factor was of interest, for ease of interpretability, the instrument scores can also be summed into one score. Scoring of the subscales is done by adding the items together. However, for ease of interpretation mean subscales should be used instead of total scores. This substitution can be helpful when comparing scores between subscales given that the number of items per subscale in not equal. Similarly, the CAMWB total score was calculated based on the addition of the subscales, and the mean CAMWB was calculated based on the addition of the subscales divided by eight. XX presents the scoring system of CAMWB.

Scoring system of CAMWB and subscales

Variables	Scoring
Self-Appraisal	(34 + 36 + 33 + 35 + 38) / 5
School Satisfaction	(18 + 13 + 17 + 15 + 14 + 20 + 16) /7
Peer Satisfaction	(6 + 7 + 5 + 9 + 8) / 5
Exposure to Bullying	(10 + 11 + 12) / 3
Negative Emotions	(45 + 46 + 42 + 43 + 40 + 44 + 37 + 41 + 21) / 9
Family Satisfaction	(29 + 26 + 30 + 27 + 28 + 39) / 6
Health Satisfaction	(22 + 24 + 25 + 23) / 4
Worries	(3 + 2 + 32 + 31 + 4 + 1) / 6
CAMWB	(Self- Appraisal + School Satisfaction + Peer Satisfaction + (7 - Exposure to Bullying) + (7- Negative Emotions) + Family Satisfaction + Health Satisfaction + (7-Worries) /8

Appendix G

Output from the EFA study 1 b

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
	1	18	18	8.	15	15	5.
	0.174	.168	.168	663	.470	.470	901
	4	7.	25	3.	6.	21	4.
	.047	227	.396	472	201	.670	800
	2	5.	30	2.	4.	26	4.
	.943	256	.651	714	847	.517	430
	2	4.	35	2.	3.	30	2.
	.622	682	.334	026	618	.135	610
	1	3.	38	1.	3.	33	4.
	.970	518	.852	899	391	.526	827
	1	3.	41	1.	1.	35	4.
	.723	077	.929	086	939	.465	718
	1	2.	44	1.	2.	37	3.
	.638	925	.854	285	294	.760	672
	1	2.	47				
	.447	584	.438				
	1	2.	49				
	.302	326	.763				
	1	2.	51				
0	.222	181	.945				
	1	2.	54				
1	.195	134	.079				
	1	2.	56				
2	.130	017	.096				
	1	1.	58				
3	.095	955	.052				
	1	1.	59				
4	.070	911	.963				
	1	1.	61				
5	.040	857	.819				

	.	1.	63					
6	982	753	.573					
	.	1.	65					
7	937	673	.245					
	.	1.	66					
8	921	644	.889					
	.	1.	68					
9	882	575	.465					
	.	1.	69					
0	850	518	.982					
	.	1.	71					
1	834	489	.471					
	.	1.	72					
2	797	422	.893					
	.	1.	74					
3	767	370	.263					
	.	1.	75					
4	756	351	.614					
	.	1.	76					
5	723	290	.904					
	.	1.	78					
6	706	260	.164					
	.	1.	79					
7	666	189	.353					
	.	1.	80					
8	639	142	.495					
	.	1.	81					
9	620	107	.601					
	.	1.	82					
0	603	076	.678					
	.	1.	83					
1	575	026	.704					
	.	.9	84					
2	551	83	.687					
	.	.9	85					
3	544	72	.658					
	.	.9	86					
4	524	35	.594					
	.	.9	87					
5	512	14	.508					
	.	.8	88					
6	473	44	.352					

	.	.8	89
7	462	25	.177
	.	.8	89
8	456	15	.992
	.	.7	90
9	440	85	.777
	.	.7	91
0	434	75	.552
	.	.7	92
1	399	12	.264
	.	.6	92
2	384	85	.950
	.	.6	93
3	377	73	.622
	.	.6	94
4	373	66	.289
	.	.6	94
5	358	40	.929
	.	.6	95
6	342	10	.539
	.	.6	96
7	338	04	.143
	.	.5	96
8	318	68	.710
	.	.5	97
9	296	29	.239
	.	.5	97
0	286	11	.750
	.	.5	98
1	282	03	.253
	.	.4	98
2	251	48	.701
	.	.4	99
3	235	20	.121
	.	.3	99
4	216	86	.506
	.	.3	99
5	189	38	.844
	.	.1	10
6	087	56	0.000

Extraction Method: Maximum Likelihood.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Communalities

	nitial	Extraction
How often do you - Use Facebook	317	.304
How often do you - Use Snapchat	549	.682
How often do you - Use Instagram	505	.576
How often do you - Use Twitter	085	.024
How often do you - Participate in any team sports	442	.413
How often do you - Play an instrument	106	.034
How often do you - Participate in any clubs or group activities	332	.232
How satisfied are you with your school/work/life balance? -	355	.275
How much does part-time work impact on your school life/results? -	152	.107
How frequently do you eat fruits and vegetables? -	143	.093
Do you sleep well? -	323	.249

Do you go on social outings with friends?	485	.303
Do you go on social outings with family?	436	.230
Do you organise get-togethers (parties, movie outings, dinner)? -	425	.201
Do you exercise at school? -	345	.366
Do you exercise outside of school? -	359	.346
How would you rate your relationship with your mother? -	246	.099
How would you rate your relationship with your father? -	287	.169
RelationshipSibling	101	.020
To which extent do you agree with this statement? 'A large family makes you feel more supported' -	143	.062
Do you do activities with your family together e.g. sport, lunches, camping?	417	.246
Do you enjoy your own company?	094	.031

How often do you have a group of friends to sit with at lunch?	125	.051
Do you think your friendship groups are positive and supportive?	318	.181
How often do you feel like a stranger in the school?	368	.315
At school, do you ever see evidence of - Name calling	586	.589
At school, do you ever see evidence of - Physical assaults	485	.485
At school, do you ever see evidence of - Students being laughed at	597	.612
At school, do you ever see evidence of - Students being intentionally ignored by others	673	.683
At school, do you ever see evidence of - Students being excluded from their group of friends	667	.647

At school, do you ever see evidence of - Racism (The belief that human races have distinctive characteristics which determine their respective cultures, usually involving the idea that one's own race is superior and has the right to rule or dominate others.)	403	.400
How would you rate your relationship with your teachers? -	254	.193
Select the answer that feels the most applicable to you. I feel: - Tired	382	.289
Select the answer that feels the most applicable to you. I feel: - Like crying	467	.432
Select the answer that feels the most applicable to you. I feel: - Understood by your friends	377	.269
Select the answer that feels the most applicable to you. I feel: - Satisfied with my body shape	841	.901
Select the answer that feels the most applicable to you. I feel: - Satisfied with my weight	843	.897

Select the answer that feels the most applicable to you. I feel: - Satisfied with my personality	606	.601
Select the answer that feels the most applicable to you. I feel: - Different from others because of the way I look	247	.136
Select the answer that feels the most applicable to you. I feel: - I have a positive attitude towards life	659	.692
Select the answer that feels the most applicable to you. I feel: - I believe I have a number of positive qualities	661	.679
Select the answer that feels the most applicable to you. I feel: - I respect myself	569	.594
Select the answer that feels the most applicable to you. I worry: - About my weight	663	.649
Select the answer that feels the most applicable to you. I worry: - About Money	401	.341
Select the answer that feels the most applicable to you. I worry: - About grades at school	458	.398

Select the answer that feels the most applicable to you. I worry: - About violence happening nowadays	288	.268
Select the answer that feels the most applicable to you. I worry: - About having a successful career	424	.325
Select the answer that feels the most applicable to you. I worry: - Others seeing me differently because of the way I look	517	.474
How often do you feel like this in your daily school life: - Calm	571	.568
How often do you feel like this in your daily school life: - Content	657	.705
How often do you feel like this in your daily school life: - Compassion	605	.660
How often do you feel like this in your daily school life: - Empathy	440	.436
How often do you feel like this in your daily school life: - Fearful	449	.356
How often do you feel like this in your daily school life: - Jealous	469	.345

How often do you feel like this in your daily school life: - Worried	550	.549
How often do you feel like this in your daily school life: - Angry	456	.366

Extraction Method: Maximum Likelihood.

Goodness-of-fit Test

Chi-Square	f	ig.
3653.353	169	.000

Pattern Matrix[a]

	Factor						
Select the answer that feels the most applicable to you. I feel: - Satisfied with my weight	.976	.016	.006	-.027	-.070	-.025	-.016
Select the answer that feels the most applicable to you. I feel: - Satisfied with my body shape	.965	.012	-.001	-.006	-.096	-.009	-.062
Select the answer that feels the most applicable to you. I worry: - About my weight	.656	.037	-.052	-.114	-.268	.013	-.035

At school, do you ever see evidence of - Students being intentionally ignored by others	.059	787	014	079	038	.026	.043
At school, do you ever see evidence of - Name calling	026	784	.058	.057	.013	.024	060
At school, do you ever see evidence of - Students being laughed at	.028	783	.102	.044	019	.079	032
At school, do you ever see evidence of - Students being excluded from their group of friends	.093	736	027	117	056	.018	.040
At school, do you ever see evidence of - Physical assaults	046	681	021	.039	028	077	126
At school, do you ever see evidence of - Racism (The belief that human races have distinctive characteristics which determine their respective cultures, usually involving the idea that one's own race is superior and has the right to rule or dominate others.)	000	634	003	.066	.023	030	.035
How often do you feel like this in your daily school life: - Compassion	033	.014	788	.051	000	003	051

How often do you feel like this in your daily school life: - Content	094	.020	745	.010	.096	.081	008
How often do you feel like this in your daily school life: - Empathy	.004	041	665	009	154	012	.014
How often do you feel like this in your daily school life: - Calm	095	.034	619	.054	.208	.023	053
How satisfied are you with your school/work/life balance? -	109	.147	262	.052	.126	001	216
Do you sleep well? -	086	.084	257	.063	.121	.035	219
How often do you have a group of friends to sit with at lunch?	008	.064	113	017	.090	.091	.040
How often do you - Use Snapchat	.033	.020	.017	818	.008	024	060
How often do you - Use Instagram	.109	.054	010	713	013	.059	183
How often do you - Use Facebook	008	018	.013	540	011	.015	.115
Do you go on social outings with friends?	.052	035	.010	429	.075	.080	296
Do you organise get-togethers (parties, movie outings, dinner)? -	.055	023	078	314	018	.026	280
How much does part-time work impact on your school life/results? -	.005	043	.085	257	122	.040	.017

How often do you - Play an instrument	.012	027	076	.130	053	.093	002
How often do you - Use Twitter	005	.012	039	105	055	070	.051
Select the answer that feels the most applicable to you. I worry: - About grades at school	.079	.008	.065	001	614	.172	078
How often do you feel like this in your daily school life: - Worried	.108	026	.038	019	585	035	.224
Select the answer that feels the most applicable to you. I worry: - About having a successful career	.043	039	.053	032	543	.210	037
Select the answer that feels the most applicable to you. I worry: - About violence happening nowadays	.052	096	046	.086	471	042	083
Select the answer that feels the most applicable to you. I worry: - About Money	.139	.022	.073	210	432	.034	.048
How often do you feel like this in your daily school life: - Fearful	005	092	071	014	432	267	.082
Select the answer that feels the most applicable to you. I worry: - Others seeing me differently because of the way I look	.281	077	052	006	426	210	015

How often do you feel like this in your daily school life: - Jealous	.067	105	085	122	389	220	.059
Select the answer that feels the most applicable to you. I feel: - Like crying	.167	009	036	162	360	205	.201
How often do you feel like this in your daily school life: - Angry	050	189	.076	124	356	226	.076
Select the answer that feels the most applicable to you. I feel: - Different from others because of the way I look	029	197	107	008	205	147	007
RelationshipSibling	005	082	037	082	.090	.027	.009
Select the answer that feels the most applicable to you. I feel: - I have a positive attitude towards life	217	.002	196	.018	.013	.611	067
Select the answer that feels the most applicable to you. I feel: - I believe I have a number of positive qualities	271	035	173	.029	.003	.595	063
Select the answer that feels the most applicable to you. I feel: - I respect myself	311	023	080	071	.014	.571	048
Select the answer that feels the most applicable to you. I feel: - Satisfied with my personality	452	071	110	019	.031	.463	.012

How often do you feel like a stranger in the school?	.049	153	.145	.031	209	292	.048
Select the answer that feels the most applicable to you. I feel: - Understood by your friends	160	.120	233	079	040	.267	003
How would you rate your relationship with your teachers? -	048	.199	174	.054	065	.250	.067
Do you think your friendship groups are positive and supportive?	048	.159	160	090	.017	.248	.018
How would you rate your relationship with your mother? -	031	.095	076	014	.011	.199	068
How often do you - Participate in any team sports	074	063	009	078	.018	078	627
Do you exercise at school? -	077	.020	007	.071	.036	154	591
Do you exercise outside of school? -	037	068	.044	126	070	.058	558
How often do you - Participate in any clubs or group activities	076	043	030	088	018	.008	444
Do you go on social outings with family?	.009	076	122	.025	045	.037	441
Do you do activities with your family together e.g. sport, lunches, camping?	.027	075	137	.042	.008	.087	429

Select the answer that feels the most applicable to you. I feel: - Tired	.077	089	.146	167	200	.002	.289
How frequently do you eat fruits and vegetables? -	026	.053	.074	004	049	.100	265
How would you rate your relationship with your father? -	082	.082	059	.071	.047	.156	215
Do you enjoy your own company?	.002	081	043	012	032	.046	.146
To which extent do you agree with this statement? 'A large family makes you feel more supported' -	.039	.043	109	032	000	.119	120

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 17 iterations.

Output from the EFA study 1 c

Goodness-of-fit Test

Chi-Square	f	ig.
2788.418	168	.000

Communalities

	Extraction
How often do you - Use Facebook	.299
How often do you - Use Snapchat	.737
How often do you - Use Instagram	.606
How often do you - Use Twitter	.054
How often do you - Participate in any team sports	.491
How often do you - Play an instrument	.015
How often do you - Participate in any clubs or group activities	.297
How satisfied are you with your school/work/life balance? -	.262
How satisfied are you with your subject choices? -	.113

How much does part-time work impact on your school life/results? -	.089
How frequently do you eat fruits and vegetables? -	.118
Do you sleep well? -	.270
Do you go on social outings with friends?	.250
Do you go on social outings with family?	.254
Do you organise get-togethers (parties, movie outings, dinner)? -	.167
Do you exercise at school? -	.341
Do you exercise outside of school? -	.362
How would you rate your relationship with your mother? -	.196
How would you rate your relationship with your father? -	.210
To which extent do you agree with this statement? 'A large family makes you feel more supported' -	.100

Do you do activities with your family together e.g. sport, lunches, camping?	.262
Do you enjoy your own company?	.041
How often do you have a group of friends to sit with at lunch?	.115
Do you think your friendship groups are positive and supportive?	.239
How often do you feel like a stranger in the school?	.321
At school, do you ever see evidence of - Name calling	.593
At school, do you ever see evidence of - Physical assaults	.490
At school, do you ever see evidence of - Students being laughed at	.630
At school, do you ever see evidence of - Students being intentionally ignored by others	.697

At school, do you ever see evidence of - Students being excluded from their group of friends	.663
At school, do you ever see evidence of - Racism (The belief that human races have distinctive characteristics which determine their respective cultures, usually involving the idea that one's own race is superior and has the right to rule or dominate others.)	.420
How would you rate your relationship with your teachers? -	.219
I feel: - Tired	.274
I feel: - Like crying	.406
I feel: - Understood by your friends	.276
I feel: - Satisfied with my body shape	.864
I feel: - Satisfied with my weight	.934
I feel: - Satisfied with my personality	.582

I feel: - Different from others because of the way I look	.142
I feel: - I have a positive attitude towards life	.715
I feel: - I believe I have a number of positive qualities	.772
I feel: - I respect myself	.526
I worry: - About my weight	.634
I worry: - About Money	.360
I worry: - About grades at school	.543
I worry: - About violence happening nowadays	.322
I worry: - About having a successful career	.521
I worry: - Others seeing me differently because of the way I look	.453
- Calm	.574
- Content	.692
- Compassion	.681
- Empathy	.473
- Fearful	.514
- Jealous	.486

- Worried	.586
- Angry	.466
Relationshi pSIbling	.036

Extraction Method: Maximum Likelihood.

Total Variance Explained

actor	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total
	8.621	15.124	15.124	5.165
	3.602	6.320	21.444	5.034
	2.992	5.249	26.693	5.153
	1.985	3.482	30.175	2.430
	1.962	3.442	33.617	5.125
	1.285	2.255	35.872	2.686
	1.414	2.480	38.352	3.109
	.890	1.562	39.914	5.602

Extraction Method: Maximum Likelihood.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Factor							

I feel: - Satisfied with my weight	957	.018	080	.009	095	.006	.010	.047
I feel: - Satisfied with my body shape	888	.026	050	039	143	004	061	.116
I worry: - About my weight	.609	.015	008	.096	093	.289	.078	017
At school, do you ever see evidence of - Students being intentionally ignored by others	.069	799	.013	.126	006	.027	.061	.063
At school, do you ever see evidence of - Name calling	035	792	.046	015	.096	.037	.014	.017
At school, do you ever see evidence of - Students being laughed at	.022	783	.101	006	.041	.076	009	.064
At school, do you ever see evidence of - Students being excluded from their group of friends	.084	747	031	.156	020	.042	.083	.001
At school, do you ever see evidence of - Physical assaults	014	670	008	018	075	026	122	009

At school, do you ever see evidence of - Racism (The belief that human races have distinctive characteristics which determine their respective cultures, usually involving the idea that one's own race is superior and has the right to rule or dominate others.)	011	638	001	084	011	.018	.023	032
Relationshi pSIbling	000	141	049	053	032	102	004	049
- Compassion	042	012	825	.001	090	054	024	.007
- Content	102	.022	708	.007	074	095	.002	.185
- Empathy	021	032	704	.066	181	.031	.032	.009
- Calm	128	.044	565	039	.036	146	032	.161
I feel: - Understood by your friends	037	.054	303	.065	.035	.043	.042	.268
How satisfied are you with your school/work/life balance? -	101	.087	293	010	.167	057	093	.037
Do you sleep well? -	110	.087	273	018	.147	073	136	.051
Do you think your friendship groups are positive and supportive?	026	.116	244	.076	.146	.061	.112	.188
How would you rate your relationship with your teachers? -	043	.191	228	039	.071	.066	.123	.157

How often do you have a group of friends to sit with at lunch?	.034	.021	207	.022	.121	003	.083	.137
To which extent do you agree with this statement? 'A large family makes you feel more supported' -	025	.064	187	046	.068	.128	113	.003
How would you rate your relationship with your mother? -	082	.126	165	.019	.161	.148	049	.101
How often do you - Use Snapchat	.025	.039	011	.861	061	031	013	.020
How often do you - Use Instagram	.088	.075	.018	.739	051	.016	160	.070
How often do you - Use Facebook	.031	.025	049	.530	098	019	.130	003
Do you go on social outings with friends?	.062	072	102	.389	.056	047	225	.065
Do you organise get-togethers (parties, movie outings, dinner)? -	.058	059	165	.290	.034	.019	184	004
How much does part-time work impact on your school life/results? -	.046	064	.115	.157	145	.011	052	.038
How often do you - Use Twitter	018	033	.047	.145	027	022	.069	109
How often do you - Play an instrument	.046	.008	024	093	045	027	009	.056
- Fearful	.014	.020	067	000	706	.030	.002	059

- Jealous	.072	.007	071	.071	672	.043	.007	.005
- Angry	025	135	.079	.034	584	.060	033	035
- Worried	.163	.028	.003	020	584	.268	.141	.026
I feel: - Like crying	.087	049	052	.148	364	.152	.185	182
I feel: - Different from others because of the way I look	075	181	064	007	259	.108	053	032
How often do you feel like a stranger in the school?	008	117	.151	052	257	.155	010	241
How would you rate your relationship with your father? -	106	.116	130	039	.178	.072	154	.072
How satisfied are you with your subject choices? -	076	.078	149	029	.167	.030	.029	.036
I worry: - About grades at school	.012	.015	.025	015	070	.728	.003	.040
I worry: - About having a successful career	.043	028	.065	011	018	.708	015	.077
I worry: - About violence happening nowadays	.052	122	084	108	163	.446	001	129
I worry: - About Money	.133	018	.037	.118	135	.422	.078	097
I worry: - Others seeing me differently because of the way I look	.240	080	061	.009	223	.375	.012	188
How often do you - Participate in any team sports	061	045	.072	.075	028	056	678	.062

Do you exercise at school? -	066	.050	.039	039	021	031	577	028
Do you exercise outside of school? -	064	043	.053	.081	.037	.129	558	.072
How often do you - Participate in any clubs or group activities	042	041	.032	.075	080	083	508	.103
Do you go on social outings with family?	.002	081	163	.006	.134	.111	388	.018
Do you do activities with your family together e.g. sport, lunches, camping?	002	118	182	026	.213	.119	342	.016
I feel: - Tired	.054	115	.131	.144	124	.166	.259	034
How frequently do you eat fruits and vegetables? -	019	.077	019	.073	.140	.059	207	.065
Do you enjoy your own company?	017	084	.011	.022	.046	.061	.170	.064
I feel: - I believe I have a number of positive qualities	119	028	067	045	074	039	066	.811
I feel: - I have a positive attitude towards life	100	.023	112	016	.020	.021	085	.714
I feel: - Satisfied with my personality	349	073	059	001	.024	032	.027	.546
I feel: - I respect myself	235	.008	046	.015	.068	.080	056	.539

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 17 iterations.

Output from the EFA study 3

French table

Final solution of the factor analysis for the MYWBS, with loading, amount of variance per factor and reliability.

Item	S							C
	A	S	S	B	E	S	D	omm
Je suis heureux	**.83**	.02	.02	.10	15	.05	.15	01	.73
Je me sens aimé	**.68**	.08	.01	.14	08	.07	05	.08	.56
Je pense avoir de nombreuses bonnes qualités	**.56**	.09	08	19	.16	.06	06	.01	.45
J'ai une attitude positive par rapport à la vie	**.46**	13	16	03	.02	.07	.19	.13	.45

Je suis satisfait de ma personnalité	. **38**	.01	10	17	.20	.08	03	.06	. 30
Je me respecte	. **38**	.06	07	.01	.19	.05	03	13	. 24
Je dors bien	22	16	05	.13	.06	.14	.14	08	23
J'ai une bonne relation avec mes enseignants	12	**61**	01	.04	21	04	.04	.04	43
Je suis satisfait du choix de mes matières	15	**57**	.09	01	.02	01	.01	.01	36
Je me sens compris par mes enseignants	.01	**55**	06	.09	.11	.08	02	.21	42
J'ai me apprendre	03	**54**	.16	18	.20	.05	.13	22	48
J'ai me venir à l'école	06	**51**	.07	06	.22	.13	.12	31	50
Je reçois l'aide dont	.04	**47**	06	.05	05	.16	.01	.04	29

j'ai besoin à l'école									
Je mange des aliments sains	.13	**43**	27	02	.02	.08	.01	.01	30
Je suis calme	.08	**25**	.20	.14	04	.11	.12	.01	20
Je passe du temps dans un club	03	17	16	.02	.04	07	.03	.10	08
Je sors avec mes amis	11	.18	**71**	.04	01	.09	04	01	60
J'organise des sorties et des repas	.05	11	**65**	.02	.01	.12	07	05	45
Je fais du sport	06	04	**51**	.02	.03	11	.21	.13	35
Je fais partie d'un groupe d'amis	22	.01	**43**	.12	05	01	.02	.09	32
Je me sens compris par mes amis	23	07	**31**	.09	02	.17	01	.10	30
J'utilise les réseaux sociaux	14	.21	**30**	05	02	.11	21	14	26

J’ai été témoin d’élèves exclus et/ou ignorés volontairement	.04	03	.04	**80**	01	.07	.01	.01	62
J’ai été témoin d’insultes, et/ou de moquerie entre élèves	.01	08	.10	**72**	08	01	01	.15	55
J’ai été témoin de violences physiques entre elèves	08	.06	03	**56**	.02	03	.04	.02	32
Je suis satisfait de la forme de mon corps	21	20	.02	02	**.51**	06	07	.05	39
J’ai des inquiétudes par rapport à la violence	03	27	.04	11	**46**	.08	.02	04	30
Je suis inquiet par mon poids	.06	.10	03	06	**45**	.03	.07	07	25

Je ressens de l'inquiétude	03	20	.12	.03	**45**	04	16	33	48
Je ressens de la peur	.06	27	.05	.07	**45**	01	22	18	43
Je ressens l'envie de pleurer	.20	19	18	07	**43**	03	20	28	57
Je ressens de la jalousie	03	.02	22	02	**31**	15	13	21	30
Je ressens de la fatigue	03	.12	.05	05	**23**	01	19	.04	14
J'ai une bonne relation avec mon père	01	.03	01	.26	.11	**.17**	.09	.14	20
J'ai une bonne relation avec mes frères et sœurs	12	11	09	.12	.22	**.22**	15	04	21
Je me sens en sécurité à l'école	05	15	01	.04	.20	.04	.07	04	10
J'ai me passer du temps avec ma famille	02	.04	02	01	07	**.81**	02	.01	64

Avec ma famille, nous faisons des sortie	.07	04	21	.02	01	**.62**	.11	10	46
J'ai une bonne relation avec ma mère	20	.02	.12	.09	13	**.50**	03	.13	39
Je ressens de la colère	.07	.17	18	08	02	28	16	09	27
Je suis malade	01	08	.05	.02	02	01	**69**	.05	45
Je manque l'école	.02	.07	11	01	.20	13	**66**	.03	52
Je me considère en bonne santé	25	05	14	.08	.04	02	**.36**	01	28
J'ai des inquiétudes par rapport à avoir un métier	.16	.08	.09	.08	.12	.01	.04	**67**	49
J'ai des inquiétudes par rapport à mes notes	14	.06	.15	.13	15	.02	.02	**55**	38

Je ressens de la tristesse	.29	24	14	02	32	14	08	**37**	57
J'ai des inquiétudes par rapport à l'argent	.02	01	16	07	09	03	.02	**30**	15
Rotation Sums of Squared Loadings	.11	.25	.51	.34	.05	.11	.45	.38	
percentVariance explained	2.90	.83	.22	.96	.88	.86	.04	.03	
Cronbach	79	76	68	73	73	62	59	56	

Note. SA: self-appraisal, SS: school satisfaction, PS: peer satisfaction, EB: exposure to bullying, NE: negative emotions, FS: family satisfaction, HD: health dissatisfaction and W: worries.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	4482.578
	df	1081
	Sig.	.000

Communalities

	Initial	Extraction

J’ai des inquiétudes par rapport à l’argent	241	.145
J’ai des inquiétudes par rapport à avoir un métier	416	.491
J’ai des inquiétudes par rapport à mes notes	405	.378
J’ai des inquiétudes par rapport à la violence qu’il y a de nos jours	323	.302
J’utilise les réseaux sociaux	358	.257
Je sors avec mes amis	544	.597
J’organise des sorties et des repas	474	.450
Je me sens compris par mes amis	387	.303
Je fais partie d’un groupe d’amis	367	.318
Je ressens de la tristesse	565	.569
Je ressens de la jalousie	368	.299
Je ressens de l’inquiétude	527	.482
Je ressens de la colère	420	.270
Je ressens de la peur	456	.429
Je ressens de la fatigue	328	.140

Je ressens l'envie de pleurer	565	.565
J'ai été témoin d'insultes, et/ou de moquerie entre élèves	519	.551
J'ai été témoin d'élèves exclus et/ou ignorés volontairement	531	.616
J'ai été témoin de violences physiques entre élèves	326	.324
Je me sens compris par mes enseignants	460	.421
J'aime apprendre	515	.476
J'aime venir à l'école	503	.502
Je suis satisfait du choix de mes matières	428	.358
J'ai une bonne relation avec mes enseignants	481	.431
Je reçois l'aide dont j'ai besoin à l'école	372	.291
Je manque l'école	453	.518
Je me sens en sécurité à l'école	192	.100
Je suis malade	436	.451

Je mange des aliments sains	352	.2 98
Je dors bien	320	.2 32
Je fais du sport	436	.3 54
Je me considère en bonne santé	403	.2 79
J’ai une bonne relation avec ma mère	390	.3 90
J’ai une bonne relation avec mon père	327	.2 03
J’ai une bonne relation avec mes frères et sœurs	263	.2 10
J’aime passer du temps avec ma famille	498	.6 39
Avec ma famille, nous faisons des sorties (pique-niques, plages, balade, cinéma, courses)	471	.4 62
Je suis satisfait de la forme de mon corps	483	.3 93
Je suis inquiet par mon poids	388	.2 46

Je suis satisfait de ma personnalité	433	.296
Je pense avoir de nombreuses bonnes qualités	495	.452
J'ai une attitude positive par rapport à la vie	504	.451
Je me respecte	275	.237
Je suis calme	283	.195
Je suis heureux	614	.730
Je me sens aimé	554	.558
Je passe du temps dans un club ou une association (par exemple de jeux de societe ou culturel)	201	.081

Extraction Method: Maximum Likelihood.

Total Variance Explained

actor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	otal	% of Variance	Cumulative %	tal	% of Variance	Cumulative %	tal
	.712	14.282	14.282	6.067	12.909	12.909	4.105
	.812	8.110	22.392	3.211	6.832	19.742	3.249

		6.	28	2.	5.	24	2.
	.031	448	.840	455	224	.966	511
		5.	33	1.	3.	28	2.
	.416	141	.981	862	961	.927	343
		4.	38	1.	2.	31	3.
	.918	081	.061	352	877	.804	054
		3.	41	.8	1.	33	3.
	.605	415	.476	75	862	.666	109
		3.	44	.9	2.	35	2.
	.544	284	.760	60	043	.709	452
		2.	47	.9	2.	37	2.
	.374	923	.684	56	033	.742	384
		2.	50				
	.357	887	.570				
		2.	53				
0	.268	698	.268				
		2.	55				
1	.180	511	.779				
		2.	58				
2	.154	454	.233				
		2.	60				
3	.097	334	.568				
		2.	62				
4	.045	224	.791				
		2.	64				
5	972	068	.860				
		1.	66				
6	939	998	.857				
		1.	68				
7	917	950	.808				
		1.	70				
8	845	798	.605				
		1.	72				
9	813	729	.334				
		1.	73				
0	774	646	.981				
		1.	75				
1	720	531	.512				
		1.	77				
2	705	501	.012				
		1.	78				
3	649	381	.394				

		1.	79				
4	643	369	.762				
		1.	81				
5	638	357	.120				
		1.	82				
6	614	307	.426				
		1.	83				
7	585	245	.672				
		1.	84				
8	573	218	.890				
		1.	86				
9	560	192	.082				
		1.	87				
0	512	089	.171				
		1.	88				
1	503	070	.241				
		1.	89				
2	485	032	.273				
		.9	90				
3	462	84	.257				
		.9	91				
4	444	44	.201				
		.8	92				
5	404	59	.060				
		.8	92				
6	397	44	.904				
		.8	93				
7	386	20	.724				
		.7	94				
8	373	94	.518				
		.7	95				
9	354	54	.272				
		.7	95				
0	332	06	.977				
		.6	96				
1	318	76	.654				
		.6	97				
2	316	72	.326				
		.6	97				
3	291	19	.945				
		.5	98				
4	277	89	.534				

		.5	99				
5	262	58	.092				
		.4	99				
6	227	83	.575				
		.4	10				
7	200	25	0.000				

Extraction Method: Maximum Likelihood.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Goodness-of-fit Test

Chi-Square	f	ig.
11 22.266	33	000

Pattern Matrix[a]

	Factor							
Je suis heureux	825	.018	.018	.094	146	.049	.154	003
Je me sens aimé	679	081	.001	.144	082	.067	046	.082
Je pense avoir de nombreuses bonnes qualités	558	085	082	192	.156	.060	056	.003
J'ai une attitude positive par rapport à la vie	460	129	158	026	.015	.069	.192	.134
Je suis satisfait de ma personnalité	381	.012	097	167	.197	.082	030	.064
Je me respecte	379	.061	073	.001	.190	.051	034	131

Je dors bien	218	156	050	.131	.055	.136	.139	084
J'ai une bonne relation avec mes enseignants	124	610	008	.041	206	037	.043	.039
Je suis satisfait du choix de mes matières	145	566	.091	012	.019	007	.005	.010
Je me sens compris par mes enseignants	.014	551	064	.090	.108	.076	017	.213
J'aime apprendre	027	542	.158	176	.202	.052	.129	221
J'aime venir à l'école	057	513	.074	064	.219	.132	.124	307
Je reçois l'aide dont j'ai besoin à l'école	.037	471	058	.046	052	.155	.010	.041
Je mange des aliments sains	.131	425	274	023	.016	.084	.096	.012
Je suis calme	.076	246	.204	.135	037	.107	.122	.009
Je passe du temps dans un club ou une association (par exemple de jeux de societe ou culturel)	031	170	162	.020	.043	070	.034	.100
Je sors avec mes amis	110	.178	711	.036	009	.092	038	005
J'organise des sorties et des repas	.047	107	647	.023	.014	.122	074	050
Je fais du sport	059	041	509	.018	.030	112	.206	.125

Je fais partie d'un groupe d'amis	224	.014	433	.119	050	003	.017	.087
Je me sens compris par mes amis	231	074	312	.090	016	.167	002	.096
J'utilise les réseaux sociaux	137	.211	300	045	022	.108	211	139
J'ai été témoin d'élèves exclus et/ou ignorés volontairement	.040	034	.035	798	007	.066	.010	.013
J'ai été témoin d'insultes, et/ou de moquerie entre élèves	.009	082	.101	717	084	013	012	.153
J'ai été témoin de violences physiques entre élèves	078	.057	026	563	.023	030	.038	.020
J'ai une bonne relation avec mon père	009	.030	012	.260	.107	.166	.089	.142
Je suis satisfait de la forme de mon corps	206	199	.015	017	.513	064	071	.048
J'ai des inquiétudes par rapport à la violence qu'il y a de nos jours	027	265	.037	107	462	.083	.022	036
Je suis inquiet par mon poids	.056	.104	028	056	452	.034	.068	068
Je ressens de l'inquiétude	033	199	.124	.029	450	039	155	328
Je ressens de la peur	.056	267	.047	.065	450	011	222	181

Je ressens l'envie de pleurer	.203	186	175	068	434	031	198	282
Je ressens de la jalousie	025	.021	219	024	312	153	131	212
Je ressens de la fatigue	033	.123	.053	045	228	006	194	.036
J'ai une bonne relation avec mes frères et sœurs	124	106	090	.115	.219	.215	151	041
Je me sens en sécurité à l'école	053	148	008	.039	.198	.042	.068	044
J'aime passer du temps avec ma famille	021	.040	017	013	065	.810	019	.004
Avec ma famille, nous faisons des sorties (pique-niques, plages, balade, cinéma, courses)	.071	035	209	.015	009	.620	.107	099
J'ai une bonne relation avec ma mère	196	.020	.124	.091	130	.499	033	.133
Je ressens de la colère	.069	.167	175	077	023	277	160	087
Je suis malade	005	080	.046	.015	020	005	693	.051
Je manque l'école	.016	.071	109	012	.197	126	659	.032
Je me considère en bonne santé	250	047	140	.080	.040	024	.356	004
J'ai des inquiétudes par rapport à avoir un métier	.161	.082	.085	.075	.117	.003	.036	673

J'ai des inquiétudes par rapport à mes notes	142	.055	.153	.130	148	.016	.018	550
Je ressens de la tristesse	.288	237	138	022	317	143	077	372
J'ai des inquiétudes par rapport à l'argent	.016	006	156	072	091	033	.015	302

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 27 iterations.

Output for the entire CAMWB reliability analysis from study 3

Reliability Statistics

Cronbach's Alpha	N of Items
.836	43

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Jesuisheureux	171.3636	424.069	.520	.829
Jemesensaime	171.6234	423.962	.504	.829
Jepenseavoirdenombreusesbonnesqualites	172.0000	425.909	.417	.830
Jaiuneattitudepositiveparrapportalavie	171.7597	419.017	.563	.827
Jesuissatisfaitdemapersonnalite	171.5292	426.941	.354	.832
Jemerespecte	170.7045	436.157	.306	.833
Jaiunebonnerelationavecmesenseignants	171.9610	435.002	.235	.835
Jesuissatisfaitduchoixdemesmatieres	172.1883	433.118	.268	.834
Jemesenscomprisparmesenseignants	172.8994	421.869	.426	.830
Jaimeapprendre	172.4870	435.736	.187	.836
Jaimeveniralecole	172.7208	430.560	.285	.833
Jerecoislaidedontjaibesoinalecole	172.3409	431.607	.263	.834
Jemangedesalimentssains	172.2662	434.248	.237	.835
Jesuicalme	172.1461	439.487	.121	.838

Jorganisedessortiesetdesrepas	172.6883	431.974	.226	.835
Jesorsavecmesamis	171.7305	433.898	.244	.834
Jefaisdusport	172.0747	425.861	.302	.833
Jefaispartiedungroupedamis	170.9935	430.788	.312	.833
Jemesenscomprisparmesamis	171.6558	425.875	.427	.830
Jutiliselesreseauxsociaux	170.8929	448.930	-.028	.840
Jesuissatisfaitdelaformedemoncorps	172.4188	418.987	.408	.830
Jaiunebonnerelationavecmonpere	171.6558	421.419	.340	.832
Jaiunebonnerelationavecmesfreresetsœurs	171.5422	424.471	.339	.832
Jaiunebonnerelationavecmamere	171.0065	429.342	.340	.832
Avecmafamillenousfaisonsdessorties	172.6526	426.358	.358	.832
Jaimepasserdutempsavecmafamille	171.4578	426.555	.359	.832
Jemeconsidereenbonnesante	171.3409	427.600	.414	.831
Rargent	172.4643	438.152	.144	.837
Rmetier	172.9870	430.886	.278	.834
Rnote	173.5065	436.694	.181	.836
RViolence	172.3961	438.618	.120	.838
Rinsult	172.5682	429.679	.263	.834
Rexclusion	172.4058	429.558	.277	.834
Rphysicalv	172.0617	438.175	.134	.838
Rinquitude	172.6526	425.602	.386	.831

Rpoids	172.1104	424.327	.304	.833
Rpeur	172.0032	429.762	.331	.832
Rpleurer	172.0357	420.230	.442	.829
Rjealous	172.2273	427.036	.289	.834
Rfatigue	173.6494	436.463	.223	.835
Rmalade	171.9740	435.061	.245	.834
Rmanquelecole	171.5812	435.378	.226	.835
Rntriste	172.6396	421.476	.452	.829

Output from the fourth EFA study 4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.869
Bartlett's Test of Sphericity	Approx. Chi-Square	678.254
	df	10
	Sig.	35
		.000

Communalities[a]

	Initial	Extraction
I worry about my grades	.382	.350
I worry about getting a job	.387	.269
I worry about violence happening nowadays	.322	.258
I use social media	.340	.295
I go on outings with friends	.635	.890
I organise get-togethers	.595	.595
I feel understood by my friends	.482	.331
I am part of a group of friends	.360	.192
I worry about money	.410	.314
I have witnessed students being laughed at or insulted by other students	.541	.616

I have witnessed students being excluded or ignored voluntarily by other students	.536	.636
I have witnessed students being victims of violence by other students	.471	.495
I feel understood by my teachers	.565	.583
I enjoy learning	.487	.319
I enjoy coming to school	.571	.500
I am satisfied with my subject choices	.414	.276
I have good relationship with my teachers	.520	.526
I receive the support that I need at school	.620	.663
I skip school	.293	.181
I feel safe at school	.366	.258
I get sick	.272	.162
I eat healthy food	.399	.321
I sleep well	.449	.338
I exercise	.388	.364
I feel healthy	.598	.731
I have a good relationship with my mother	.619	.617
I have a good relationship with my father	.544	.552
I have a good relationship with my siblings	.331	.284

I enjoy spending time with my family	.676	.724
I go on outings with my family	.570	.575
I am satisfied with my body shape	.570	.443
I worry about my weight	.439	.294
I am satisfied with my personality	.578	.519
I consider having a number of good qualities	.630	.618
I have a positive attitude towards life	.625	.596
I respect myself	.599	.585
I feel calm	.493	.441
I feel happy	.617	.573
I feel loved	.531	.502
I feel fearful	.435	.318
I feel jealous	.407	.297
I feel worried	.535	.498
I feel angry	.436	.365
I feel tired	.474	.382
I feel like crying	.588	.609
I feel sad	.626	.643

Extraction Method: Maximum Likelihood.

a. One or more communalitiy estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

Pattern Matrix[a]

	Factor							
	1	2	3	4	5	6	7	8
I consider having a number of good qualities	.700	.010	-.068	.016	.176	.041	.077	-.087
I respect myself	.672	.025	.084	-.112	.000	-.104	.004	.046
I am satisfied with my personality	.573	.092	.018	.005	.087	.010	.070	-.190
I have a positive attitude towards life	.549	-.037	.135	-.026	.093	-.206	.107	.157
I feel happy	.461	-.028	.232	-.008	.100	-.236	.065	.107

I go on outings with friends	-.089	.943	.084	.012	-.004	-.051	.109	.030
I organise get-togethers	-.050	.720	.086	-.052	.041	.065	.187	.131
I use social media	.069	.467	.018	.031	.040	.048	-.244	-.010
I am part of a group of friends	.102	.275	.077	-.081	.125	-.088	.053	.022
I enjoy spending time with my family	-.001	.038	.869	-.044	-.012	.008	-.103	.016
I have a good relationship with my mother	-.072	.039	.763	-.023	.011	-.056	.032	-.092
I go on outings with my family	-.018	.133	.754	.132	-.030	-.036	-.019	.015

I have a good relationship with my father	.013	.025	.732	-.037	-.048	-.030	.014	-.024
I have a good relationship with my siblings	.149	-.033	.456	.000	.048	.079	-.005	-.013
I feel loved	.291	.102	.408	-.063	.113	.066	.122	.067
I have witnessed students being laughed at or insulted by other students	-.027	-.020	-.017	.802	.093	.018	.002	-.031
I have witnessed students being excluded or ignored voluntarily by other students	-.054	.004	.071	.796	.073	.084	-.013	-.027

I have witnessed students being victims of violence by other students	.042	-.011	.004	.701	-.036	-.082	.000	.062
I receive the support that I need at school	.135	-.028	.015	.062	.770	-.100	-.082	-.003
I feel understood by my teachers	.001	.085	.003	.116	.769	-.020	-.023	-.068
I have good relationship with my teachers	.046	.022	-.044	.013	.737	.063	-.010	-.031
I enjoy coming to school	-.053	.004	-.003	.013	.598	-.222	.144	.095
I enjoy learning	.052	-.047	-.003	-.126	.448	.017	.139	.048
I feel safe at school	.056	.114	.013	-.194	.353	.011	.014	-.072

I feel understood by my friends	.137	.247	.173	.006	.277	.016	.048	-.110
I am satisfied with my subject choices	.110	-.049	.199	-.121	.259	.148	.094	-.129
I feel like crying	-.125	.070	-.074	-.071	-.072	.666	-.065	.025
I feel sad	-.177	-.013	-.150	-.021	-.047	.641	-.070	-.032
I feel worried	-.112	.030	.042	.031	-.037	.576	-.035	.178
I feel angry	.085	.001	-.055	.156	-.177	.482	.035	.026
I feel fearful	-.092	-.045	.030	.084	-.011	.451	-.042	.122
I feel tired	-.105	.050	-.152	.017	.056	.451	-.140	.034
I feel calm	.345	-.068	.226	-.087	-.040	-.355	-.012	.103
I feel jealous	-.074	.022	-.042	.143	-.056	.327	-.009	.201
I get sick	.011	.037	.053	.018	-.057	.305	-.130	.075
I skip school	.116	.095	-.113	.079	-.183	.217	-.004	-.128

I feel healthy	.128	.027	.032	.043	.056	-.078	.731	-.082
I exercise	.013	.081	-.047	.050	-.038	-.181	.556	.027
I eat healthy food	.013	.012	-.027	-.109	.065	.131	.543	-.012
I sleep well	.054	-.026	.310	-.034	.036	-.069	.327	.040
I worry about getting a job	-.043	.102	.000	.055	-.079	-.064	.023	.487
I worry about my grades	-.095	-.104	.139	.055	.130	.296	.032	.425
I worry about my weight	-.105	.035	-.069	-.104	.014	.047	-.186	.417
I worry about violence happening nowadays	.101	-.063	-.014	.043	-.008	.239	.052	.408
I worry about money	.120	.137	-.194	.101	-.141	.031	-.046	.402

I am satisfied with my body shape	.213	-.080	.250	.105	-.013	-.056	.225	-.341

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 13 iterations.

Pattern Matrix[a]

	Factor							
	1	2	3	4	5	6	7	8
I consider having a number of good qualities	.700	.010	-.068	.016	.176	.041	.077	-.0
I respect myself	.672	.025	.084	-.112	.000	-.104	.004	.0
I am satisfied with my personality	.573	.092	.018	.005	.087	.010	.070	-.1
I have a positive attitude towards life	.549	-.037	.135	-.026	.093	-.206	.107	.1
I feel happy	.461	-.028	.232	-.008	.100	-.236	.065	.1
I go on outings with friends	-.089	.943	.084	.012	-.004	-.051	.109	.0
I organise get-togethers	-.050	.720	.086	-.052	.041	.065	.187	.1
I use social media	.069	.467	.018	.031	.040	.048	-.244	-.0
I am part of a group of friends	.102	.275	.077	-.081	.125	-.088	.053	.0
I enjoy spending time with my family	-.001	.038	.869	-.044	-.012	.008	-.103	.0
I have a good relationship with my mother	-.072	.039	.763	-.023	.011	-.056	.032	-.0
I go on outings with my family	-.018	.133	.754	.132	-.030	-.036	-.019	.0
I have a good relationship with my father	.013	.025	.732	-.037	-.048	-.030	.014	-.0

I have a good relationship with my siblings	.149	-.033	.456	.000	.048	.079	-.005	-.0
I feel loved	.291	.102	.408	-.063	.113	.066	.122	.0
I have witnessed students being laughed at or insulted by other students	-.027	-.020	-.017	.802	.093	.018	.002	-.0
I have witnessed students being excluded or ignored voluntarily by other students	-.054	.004	.071	.796	.073	.084	-.013	-.0
I have witnessed students being victims of violence by other students	.042	-.011	.004	.701	-.036	-.082	.000	.0
I receive the support that I need at school	.135	-.028	.015	.062	.770	-.100	-.082	-.0
I feel understood by my teachers	.001	.085	.003	.116	.769	-.020	-.023	-.0
I have good relationship with my teachers	.046	.022	-.044	.013	.737	.063	-.010	-.0
I enjoy coming to school	-.053	.004	-.003	.013	.598	-.222	.144	.0
I enjoy learning	.052	-.047	-.003	-.126	.448	.017	.139	.0
I feel safe at school	.056	.114	.013	-.194	.353	.011	.014	-.0
I feel understood by my friends	.137	.247	.173	.006	.277	.016	.048	-.1
I am satisfied with my subject choices	.110	-.049	.199	-.121	.259	.148	.094	-.1
I feel like crying	-.125	.070	-.074	-.071	-.072	.666	-.065	.0
I feel sad	-.177	-.013	-.150	-.021	-.047	.641	-.070	-.0
I feel worried	-.112	.030	.042	.031	-.037	.576	-.035	.1
I feel angry	.085	.001	-.055	.156	-.177	.482	.035	.0
I feel fearful	-.092	-.045	.030	.084	-.011	.451	-.042	.1
I feel tired	-.105	.050	-.152	.017	.056	.451	-.140	.0
I feel calm	.345	-.068	.226	-.087	-.040	-.355	-.012	.1
I feel jealous	-.074	.022	-.042	.143	-.056	.327	-.009	.2
I get sick	.011	.037	.053	.018	-.057	.305	-.130	.0
I skip school	.116	.195	-.113	.079	-.183	.217	-.004	-.1
I feel healthy	.128	.027	.032	.043	.056	-.078	.731	-.0
I exercise	.013	.081	-.047	.050	-.038	-.181	.556	.0
I eat healthy food	.013	.012	-.027	-.109	.065	.131	.543	-.0

I sleep well	.054	-.026	.310	-.034	.036	-.069	.327	.0
I worry about getting a job	-.043	.102	.000	.055	-.079	-.064	.023	.4
I worry about my grades	-.095	-.104	.139	.055	.130	.296	.032	.4
I worry about my weight	-.105	.035	-.069	-.104	.014	.047	-.186	.4
I worry about violence happening nowadays	.101	-.063	-.014	.043	-.008	.239	.052	.4
I worry about money	.120	.137	-.194	.101	-.141	.031	-.046	.4
I am satisfied with my body shape	.213	-.080	.250	.105	-.013	-.056	.225	-.3

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 13 iterations.

Output for CFAs of study 5

French sample

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 745.365 ON 28 DEGREES OF FREEDOM

INDEPENDENCE AIC = 689.36498 INDEPENDENCE CAIC = 536.48765

MODEL AIC = 118.24031 MODEL CAIC = 30.88183

CHI-SQUARE = 150.240 BASED ON 16 DEGREES OF FREEDOM

PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001

THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 160.477.

BENTLER-BONETT NORMED FIT INDEX= 0.798

BENTLER-BONETT NONNORMED FIT INDEX= 0.673

COMPARATIVE FIT INDEX (CFI) = 0.813

BOLLEN (IFI) FIT INDEX= 0.816

McDonald (MFI) FIT INDEX= 0.900

LISREL GFI FIT INDEX= 0.943

LISREL AGFI FIT INDEX= 0.872

ROOT MEAN SQUARED RESIDUAL (RMR) = 0.087

STANDARDIZED RMR = 0.087

ROOT MEAN SQ. ERROR OF APP.(RMSEA)= 0.115

90% CONFIDENCE INTERVAL OF RMSEA (0.098, 0.131)

Australian sample

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 1353.964 ON 28 DEGREES OF FREEDOM

INDEPENDENCE AIC = 1297.96433 INDEPENDENCE CAIC = 1146.38748

MODEL AIC = 78.99295 MODEL CAIC = -18.44931

CHI-SQUARE = 114.993 BASED ON 18 DEGREES OF FREEDOM

PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001

THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 113.516.

BENTLER-BONETT NORMED FIT INDEX= 0.915

BENTLER-BONETT NONNORMED FIT INDEX= 0.886

COMPARATIVE FIT INDEX (CFI) = 0.927

BOLLEN (IFI) FIT INDEX= 0.927

McDonald (MFI) FIT INDEX= 0.924

LISREL GFI FIT INDEX= 0.955

LISREL AGFI FIT INDEX= 0.911

ROOT MEAN SQUARED RESIDUAL (RMR) = 0.060

STANDARDIZED RMR = 0.060

ROOT MEAN SQ. ERROR OF APP.(RMSEA)= 0.094

90% CONFIDENCE INTERVAL OF RMSEA (0.078, 0.111)

Output for CFAs of study 6

Multi sample analysis

```
  GOODNESS OF FIT SUMMARY

  INDEPENDENCE MODEL CHI-SQUARE =       2764.041 ON   132
DEGREES OF FREEDOM

  INDEPENDENCE AIC =  2500.04102   INDEPENDENCE CAIC =
1706.08552
         MODEL AIC =   264.44775          MODEL CAIC =  -
331.01887

  CHI-SQUARE =      462.448 BASED ON    99 DEGREES OF FREEDOM
  PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN
0.001

  BENTLER-BONETT NORMED    FIT INDEX=       0.833
  BENTLER-BONETT NONNORMED FIT INDEX=       0.816
  COMPARATIVE FIT INDEX (CFI)       =       0.862
  BOLLEN (IFI)             FIT INDEX=       0.864
  McDonald (MFI)           FIT INDEX=       0.684
  LISREL GFI               FIT INDEX=       0.934
  LISREL AGFI              FIT INDEX=       0.896
  ROOT MEAN SQUARED RESIDUAL (RMR)  =       0.065
  STANDARDIZED RMR                  =       0.065
  ROOT MEAN SQ. ERROR OF APP.(RMSEA)=       0.057
  90% CONFIDENCE INTERVAL OF RMSEA (       0.052,       0.063)
```

Australian model of coping

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 1914.905 ON 66 DEGREES OF FREEDOM

INDEPENDENCE AIC = 1782.90531 INDEPENDENCE CAIC = 1422.96606

MODEL AIC = 112.57415 MODEL CAIC = -149.19985

CHI-SQUARE = 208.574 BASED ON 48 DEGREES OF FREEDOM

PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001

THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 216.361.

BENTLER-BONETT NORMED FIT INDEX= 0.891

BENTLER-BONETT NONNORMED FIT INDEX= 0.881

COMPARATIVE FIT INDEX (CFI) = 0.913

BOLLEN (IFI) FIT INDEX= 0.914

McDonald (MFI) FIT INDEX= 0.881

LISREL GFI FIT INDEX= 0.946

LISREL AGFI FIT INDEX= 0.913

ROOT MEAN SQUARED RESIDUAL (RMR) = 0.045

STANDARDIZED RMR = 0.045

ROOT MEAN SQ. ERROR OF APP.(RMSEA)= 0.073

90% CONFIDENCE INTERVAL OF RMSEA (0.063, 0.083)

French model of coping

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 849.136 ON 66 DEGREES OF FREEDOM

INDEPENDENCE AIC = 717.13576 INDEPENDENCE CAIC = 375.94145

MODEL AIC = 93.94676 MODEL CAIC = -159.36417

CHI-SQUARE = 191.947 BASED ON 49 DEGREES OF FREEDOM

PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001

THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 194.090.

BENTLER-BONETT NORMED FIT INDEX= 0.774

BENTLER-BONETT NONNORMED FIT INDEX= 0.754

COMPARATIVE FIT INDEX (CFI) = 0.817

BOLLEN (IFI) FIT INDEX= 0.821

McDonald (MFI) FIT INDEX= 0.861

LISREL GFI FIT INDEX= 0.936

LISREL AGFI FIT INDEX= 0.899

ROOT MEAN SQUARED RESIDUAL (RMR) = 0.068

STANDARDIZED RMR = 0.068

ROOT MEAN SQ. ERROR OF APP.(RMSEA)= 0.078

90% CONFIDENCE INTERVAL OF RMSEA (0.067, 0.090)

Output for study 7

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.498	725.461	20	.000

Standardized Canonical Discriminant Function Coefficients

	Function 1
MSelfAppraisal	.376
MPeerSat	.062
MFamilySat	-.050
MBullying	.082
MSchoolSat	-.629
MNegativeEmotions	.124
MHealthSat	.513
MWorries	.088
ventilating	-.318
seeking	.515
devself	-.153
devsocial	-.174
solving	.036
spiritual	.284
closefr	.147
profhelp	-.189
humour	-.011
demanding	-.292

relax	-.382
avoiding	.224

Classification Results[a,c]

			Predicted Group Membership		
		Country	Australia	France	Total
Original	Count	Australia	548	81	629
		France	69	356	425
	%	Australia	87.1	12.9	100.0
		France	16.2	83.8	100.0
Cross-validated[b]	Count	Australia	545	84	629
		France	75	350	425
	%	Australia	86.6	13.4	100.0
		France	17.6	82.4	100.0

a. 85.8% of original grouped cases correctly classified.

b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

c. 84.9% of cross-validated grouped cases correctly classified.